MAZEL', R. Ye., Cand Tech Sci -- (diss) "Research into structure, properties, and character of damage to welded assemblies of pipelines at electric power stations of high pressure." Moscow, 1960. 17 pp; (All-Union Main Power Administration under Gosplan USSR, All-Union Order of Labor Red Banner Heat-technology Scientific Research Inst im F. E. Dzerzhinskiy); 230 copies; price not given; (KL, 17-60, 156)

S/096/61/000/009/002/008
E193/E183

AUTHORS: Vidman, D.N., Engineer, and
Mazel', R.Ye., Candidate of Technical Sciences

TITLE: Investigation of the structure and properties of Steel 12ХМФ (12KhMF) in the brittle and normal condition

PERIODICAL: Teploenergetika, 1961, No.9, pp. 44-49

TEXT: Steel 12KhMF is used in the Soviet Union as a constructional material in the fabrication of highly stressed components of the steam generating and distributing plant in which the steam temperature may reach 570 °C. A large proportion of tubes made of this steel and intended to form the main steam conduits at several power stations has recently had to be scrapped because of their low impact strength which sometimes was less than 0.5 kgm/cm^2. Hence the present investigation, whose object was to compare the structure and various mechanical properties of this steel in both brittle and normal conditions. The experimental work was carried out on tubes (273 mm in diameter, 36 mm wall thickness) as supplied from various power stations. The composition of two batches of this material is given in Table 1. Since in many cases

Investigation of the structure and ...

regions of low (< 1.0 kgm/cm^2) and high (> 15 kgm/cm^2) impact strength were found in one and the same tube, the object of the first stage of the present investigation was to establish what heat treatment would reduce the impact strength of the material studied to $a_k < 1$-2 kgm/cm^2. Fifteen different heat treatment schedules were tried and it was found that minimum impact strength ($a_k < 1$ kgm/cm^2) is imparted to the steel studied by heating it to 980-1100 °C, cooling it in air or oil, and then tempering at 650°C; similar results were obtained by heating the steel to 1150 °C, holding it at the temperature for 40 minutes and then cooling it at a rate of 50 °C/h to 600 °C. Correlation of these results with the actual heat treatment schedules used during the fabrication of tubes indicated that local embrittlement of the tubes can be caused by departure from the normal heat treatment conditions, which results in parts of the tube being tempered at too low a temperature (approximately 650 °C). It was found also that ductile properties ($a_k > 10$ kgm/cm^2) can be restored to a brittle material by simply tempering it at 750.°C, i.e. at a temperature which, while sufficiently high, would not bring the steel into the solid solution (austenite range). The object of the next series of

experiments was to study the structure of the steel in both brittle and normal condition by optical and electron microscopy, X-ray diffraction, and carbide analysis. The results indicated that whereas Steel 12KhMF in the normal condition has a structure consisting of pearlite and ferrite grains with the carbides mainly dispersed in the solid solution, the carbides of the alloying elements in the brittle material are concentrated at the grain boundaries. In the final stage, various mechanical properties of the steel at temperatures up to 570 °C were studied with particular reference to the effect of stress-risers (notches) on the strength and ductility of both brittle and normal material. In addition, internal friction, specific heat, electrical resistivity, and the elastic modulus were measured. The most important results are reproduced graphically. Thus, the temperature-dependence of σ_b and σ_s (UTS and yield point, respectively, kg/mm^2) and ψ and δ (reduction of area and ductility, %) of steel 12 KhMF is shown in Fig.1a, curves 1 and 2 (full and open circles) relating to ductile and brittle condition, respectively. The temperature-dependence of impact strength (kgm/cm^2) of this steel is illustrated

in Fig.16, the various curves relating to the following specimens: 1 - normal condition, batch number 1, notch root radius R_H = 1 mm, notch depth h_H = 2 mm; 2 - normal condition, batch number 2, R_H = 1 mm, h_H = 2 mm; 3 - brittle condition, R_H = 1 mm, h_H = 2 mm; 4 - brittle condition, R_H = 0.15 mm, h_H = 4 mm; 5 - normal condition, R_H = 0.15 mm, h_H = 2 mm; 6 - brittle condition, tempered at 750 °C; 7 - normal condition, R_H = 0.15 mm, h_H = 3 mm. The notch sensitivity of steel 12 KhMF in the brittle condition is also illustrated by three-dimensional diagrams reproduced in Figs. 3 and 5. Fig.3 shows the reduction of area (%) of notched tensile test pieces, blocks a-б relating to the following specimens: a - ductile condition, R_H = 0.3 mm, K_t = 4 (no definition of K_t given); б - brittle condition, R_H = 0.3 mm, K_t = 4; б - brittle condition, R_H = 0.1 mm, K_t = 6.4. In Fig.5 the impact strength D_k (kgm/cm^2, vertical axis) of steel 12KhMF in the brittle condition is plotted against the test temperature (°C, horizontal axis) and the notch depth (h_H, mm, the third axis); diagrams a and б relating to specimens with the R_H of 1.0 and 0.15 mm respectively. Other properties of the steel studied were also affected by the

transition from the normal to brittle condition. Thus, the internal friction of the brittle material was 5-10 times lower than that of the steel in the normal condition. The modulus of elasticity of brittle specimens within the entire temperature range studied was also approximately 25% lower than that of normal material. An increase in the electrical resistivity and a change in the electrode potential were observed in the brittle material whose specific heat however was practically the same as that of steel in the normal condition. It was inferred from these findings that the changes in the properties of steel 12KhMF, brought about by its transition to the brittle condition, are more profound than those normally associated with temper brittleness in other constructional steels.
There are 7 figures, 3 tables and 8 references: 5 Soviet and 3 non-Soviet. The English language references read as follows:
Ref.5: J.H. Hollomon. "Trans. of the Amer. Society for Metals", Vol.36, pp.473-542, 1946.
Ref.6: A.P. Taber, J.F. Thorlin, J.E. Wallage. "Trans. of the Amer. Society for Metals", Vol.42, pp.1033-1056, 1950.

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiy institut
(All-Union Institute of Heat Engineering)

Table 1

Batch number	Content of alloying elements, %							
	C	Cr	Mo	V	Mn	Si	S	P
1	0.11	1.18	0.3	0.19	0.67	0.27	0.024	0.015
2	0.10	1.20	0.3	0.18	0.68	0.25	0.025	0.014

VIDMAN, D.N., inzh.; MAZEL', R.Ye., kand.tekhn.nauk

Investigating the structure and properties of 12KhMF steel in the embrittled and normal state. Teploenergetika 8 no.9: 44-49 S '61. (MIRA 14:8)

1. Vsesoyuznyy teplotekhnicheskiy institut.
(Steel--Testing)

RATNER, A.V., kand.tekhn.nauk; GURA, P.M., kand.tekhn.nauk; MAZEL', R.Ye., kand.tekhn.nauk

Causes of deformationless breakdown of the welded joints of steampipes made from austentic steel. Teploenergetika 9 no.8:12-17 Ag '62. (MIRA 15:7)

1. Vsesoyuznyy teplotekhnicheskiy institut.
(Pipe, Steel) (Steampipes)

L 8430-65 EWT(m)/EPF(n)-2/EWP(k)/EWP(q)/EWP(b) Pf-4/Pu-4 ASD(m)-3 MJW/JD/HM/JG

ACCESSION NR: AP4042619 S/0096/64/000/008/0051/0054

AUTHOR: Mazel', R. Ye. (Candidate of technical sciences)

TITLE: Comparison of certain properties of welded joints in pearlitic and austenitic steam pipes

SOURCE: Teploenergetika, no. 8, 1964, 51-54

TOPIC TAGS: austenitic steel, pearlitic steel, austenitic steel pipe, pearlitic steel pipe, austenitic steel weld, pearlitic steel weld, austenitic steel pipeline, pearlitic steel pipeline

ABSTRACT: Welded joints between steam pipes made of 1Kh18N12T or E1-257 austenitic steels or of 12Kh1MF pearlitic steel have been investigated and their behavior at high welding temperatures compared. It was found that at temperatures up to 1400C, pearlitic steel maintains its high ductility (reduction of area = 90% at 1350C and 55% at 1400C), while austenitic steels at 1200—1350C become brittle (reduction of area = 0). Electroslag melting of the latter somewhat improves its ductility, raising the reduction of area to over 10%. The brittleness of austenitic steel at welding temperatures is the cause of hot

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L 8430-65
ACCESSION NR: AP4042619

cracks in the weld-adjacent zone. Pearlitic steel pipes are much less susceptible to this type of crack. Local ductility in the weld-adjacent zone of austenitic steels is much lower than that of pearlitic steels. These zones are the most susceptible to damage during the operation of steam pipes. As the thickness of the pipe wall increases, the damping properties of pearlitic steel decrease but are still 20 times higher than those of austenitic steels. In addition, the damping properties of pearlitic-steel joints increase with an increase of temperature from 20C to the pipe operating temperature, while in austenitic-steel joints the damping properties decrease. The investigation of the 1Kh18N12T-steel joints welded with the TsT-15 electrode showed that the diffusion of niobium from the weld metal into the weld-adjacent zone occurs after 18,000 hr of operation, and, as a result, this zone becomes susceptible to crack formation; this does not occur, however, in pearlitic-steel joints welded with the TsL-27 electrode. The decrease in ductility in the zone adjacent to austenitic-steel welds is apparently due to the formation of dispersed niobium phases. To improve austenitic-steel welded joints, it is suggested that electrodes be alloyed to provide a chemical diffusion during welding and operation and in this way reduce the content of carbide-forming elements in the weld-adjacent zone. Orig. art. has: 4 figures.

Card 2/3

L 8430-65
ACCESSION NR: AP4042519

ASSOCIATION: Vsesoyuznyy teplotekhnicheskiy institut (All-Union Institute of Heat Engineering)

SUBMITTED: 00 ATD PRESS: 3102 ENCL: 00

SUB CODE: MM NO REF SOV: 008 OTHER: 003

Card 1/2

L 59636-65 EWT(m)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c) Pf-4

ACCESSION NR: AP5002205 MJW/JD/HM 9/0096/65/005/001/0066/0069

AUTHORS: Masel', R. Ye. (Candidate of technical sciences); Utevskiy, L. M. (Doctor of technical sciences); Orlov, L. G. (Candidate of technical sciences) 27 B

TITLE: Investigation of welded joints in steam conducting tubes made from heat-resistant austenitic steels 12

SOURCE: Teploenergetika, no. 1, 1965, 66-69

TOPIC TAGS: austenite steel, welding defect, steel, electron microscope, carbide, chemical composition/ EP 184 steel, EI 695R steel, EP 17 steel, 1Kh18N12T steel, 1Kh16N9M2 steel

ABSTRACT: The submicroscopic characteristics and the local composition around the weld joints were investigated and compared to the weld itself and to the metallic structure of steam conduits made from types EP-184, EP-17 and EI-695R (Nos. 1,2,3) steels. In addition, three more commercial austenitic steels were studied after being subjected to a thermal cycle (1340-1360C). A lowering of plastic characteristics was also noted. The investigations were conducted with electron microscopes (using carbon replicas), x-ray analyses, and with microgaseous as well as carbide tests. The chemical compositions of the weld joints for types 1, 2, and 3 steels

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ACCESSION NR: AP5002205

were tabulated. The results show inhomogeneous gas saturation in the various weld zones, as in the vicinity of the weld a much larger oxygen content was observed than in the metal proper. The carbide test showed that tungsten was present exclusively as a solid solution. The electron-microscope showed the presence of large amounts of precipitation along the grains in the vicinity of the weld joint as well as in the fused boundaries. Some of these depositions are believed to be at least partly oxides. Along the weld boundaries coarse deposits could also be observed in the form of plane dendrites. Microdiffraction analysis showed these to be $(Re,Cr)_{23}C_3$ type carbides. These results underscore the necessity of welding in a protective atmosphere (e.g., argon) to reduce the oxygen content in the weld boundaries. Orig. art. has: 6 figures and 3 tables.

ASSOCIATION: VTI-TsNIICHM

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NO REF SOV: 002 OTHER: 000

Card 2/2

MAZEL', R.Ye., kand. tekhn. nauk; PROKHODTSEVA, L.V., inzh.

Study of the characteristics of the welded joints and basic metal of steampipes. Teploenergetika 12 no.3:24-27 Mr '65. (MIRA 18:6)

1. Vsesoyuznyy teplotekhnicheskiy institut.

RATNER, A.V., kand. tekhn. nauk; MAZEL', R.Ye., kand. tekhn. nauk; LEONOVA, L.G., kand. tekhn. nauk; BOROVIN, G.K., inzh.

Design strength of joints welded by high-frequency currents. Teploenergetika 12 no.11:67-70 N '65. (MIRA 18:10)

1. Vsesoyuznyy teplotekhnicheskiy institut.

L 22295-66 EWP(k)/EWT(d)/EWT(m)/T/EWA(d)/EWP(w)/EWP(v)/EWP(t) IJP(c) EM/
ACC NR: AP6009810 JD/HM/HW(N) UR/0096/66/000/004/0017/0022 41 40 B

AUTHOR: Mazel', R.Ye. (Candidate of technical sciences)

ORG: All-Union Heat Technology Institute (Vsesoyuznyy teplotekhnicheskiy institut)

TITLE: The nature of the weakening of welded joints in thick walled steam pipes made of 12Kh1MF steel

SOURCE: Teploenergetika, no.4, 1966, 17-22

TOPIC TAGS: steel, butt welding, pipe, material failure/12Kh1MF steel

ABSTRACT: In the experiments, welding of the steam pipes was carried out with preheating at 400 to 450°C with Brand TsL-20M electrodes and a subsequent heat treatment consisting of high annealing at 720 to 740°C with a holding time of 5 hours. A figure shows the nature of the distribution of the hardness (measured with a Vickers instrument) at several sections of the welded joint before and after heat treatment. To study temperature distribution 11 thermocouples were installed on the surface and internally at distances of 3.5 and 12 mm from the face of the tube. Micro investigations of the structure of the same section of the base metal of the steam tube were carried out during the heating process with different holding times at temperatures of 20, 360, 460, 510, 580, 770, 820, 850, 960, and 1000°C. Results are tabulated. The data shows that

Card 1/2 UDC: 621.772.4.621.791.053.001.45

L 22295-66

ACC NR: AP6009810

significant microstructural changes start with heating to a temperature of 850°C. At this temperature of 850°C, at first there takes place activation of the process of spheroidization. Increased holding time of the metal at this temperature brings about formation of austenite and a change in the configuration of the grain boundaries. With further heating to 960 and 1000°C there is a complete change in the original structural picture. New grain boundaries appear, coarsely dispersed secondary phases with a spheroidal structure separate out, the grain size increases slightly and the structure of the solid solution becomes austenitic. Orig. art. has: 8 figures and 1 table.

SUB CODE: 11,13/ SUBM DATE: none/ ORIG REF: 006/ OTH REF: 002

Card 2/2 pst

L 23197-66 EWT(d)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k) IJP(c) JD/HM/EM

ACC NR: AP6005891 SOURCE CODE: UR/0096/65/000/011/0067/0070

AUTHOR: Ratner, A. V. (Candidate of technical sciences); Mazel', R. Ye. (Candidate of technical sciences); Leonova, L. G. (Candidate of technical sciences); Borovin, G. K. (Engineer).

ORG: All-Union Heat Technology Institute (Vsesoyuznyy teplotekhnicheskiy institut)

TITLE: Construction strength of welded joints made with high frequency currents

SOURCE: Teploenergetika, no. 11, 1965, 67-70

TOPIC TAGS: welding technology, high frequency

ABSTRACT: Joints in tubes with a diameter of 25 x 3 mm, made of Steel 20, were used for the tests. The welding was done with high frequency currents as well as by the contact method. The high frequency welding was done under the following conditions: generator voltage-430 volts; power of generator-60 kilowatts; frequency-8,000 cycles. Shielding from oxidation was done with a gas consisting of 15% acetylene and 85% natural gas, fed at a rate of 1.5 liters/sec through the 25 x 3 mm tubes. During the heating, there was a gap of 1 mm between the ends of the tubes,

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ACC NR: AP6005891

through which the gas flowed and covered the surfaces being welded. Within a few seconds the gap closed and deposition began. The optimum heating temperature depends on the oxidation shielding medium and, at a specific deposition pressure of from 4 to 6 kgf/mm^2, is from 1250 to 1280°C (that is, lower than the melting temperature of the steel). In the tests for resistance to thermal shock, samples of the welded joints were heated in an electric furnace and suddenly quenched in water. The samples were subjected to a metallographic investigation after tests at 780, 1500, 5112, and 10,062 cycles. The vibration resistance of the welded tube joints was studied in a special unit designed for simultaneous evaluation of the effect on construction strength of cyclic vibrations, internal pressure, and elevated temperatures. Test results are exhibited graphically and in tabular form. The general conclusion of the article is that welding with high frequency currents shows promise in welding heating surface tubes made of low carbon steel. Orig. art. has: 8 figures and 1 table.

SUB CODE: 11, 13/ SUBM DATE: none.

Card 2/2 BK

ACC NR: AP6036431 (N) SOURCE CODE: UR/0096/66/000/012/0042/0047

AUTHOR: Mazel', R. Ye. (Candidate of Technical Sciences); Przhiyalkovskiy, M. M. (Candidate of Technical Sciences); Koverdyayev, V. N. (Engineer); Petrova, I. N. (Engineer)

ORG: All-Union Heat Engineering Institute (Vsesoyuznyy teplotekhnicheskiy institut)

TITLE: Study of the effect of shot peening on the properties of the metal of pipes of heating surfaces

SOURCE: Teploenergetika, no. 12, 1966, 42-47

TOPIC TAGS: shot peening, pipe

ABSTRACT: The effect of shot peening on the change in certain properties of metal pipes of pearlitic and austenitic steels (20, 12Kh1MF, EP-184 and EP-17) was studied. A special testing unit was built in order to determine the state of the metal of convective heating surfaces subjected to shot peening at room temperature and at high temperatures (up to 590°C). The tests showed the necessity of designing units for shot blasting which permit one to decrease the work hardening of pipes by changing the direction and decreasing the velocity of the stream of shot while at the same time insuring its uniform distribution. Because of the wear and decrease of plastic properties observed in the pipe metal in the region of peening, recommendations are

Card 1/2 UDC: 621.772.4.001.45

ACC NR: AP6036431

given for periodic testing of such pipes. Orig. art. has: 6 figures, 2 tables and 1 formula.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 011

Card 2/2

APPROVED FOR RELEASE: 06/14/2000 CIA-RDP86-00513R001033120014-6"

PA 19777

MAZEL', S. I.

USSR/Relays, Telephone
Telephones - Switchboards

Jul 1946

"Particulars of Assembling and Installing Stepper ATS," S. I. Mazel', 4 pp

"Vestnik Svyazi - Elektro Svyaz'" No 7 (76)

Well illustrated article dealing with some assembling particulars. It does not attempt to answer all the questions but only a few which come up during the installation of such equipment in ATS stations.

19777

MAZEL', S. I.

PA 19T88

USSR/Relays, Telephone Sep 1946
Telephones - Apparatus

"Automatic Inspection of the Output of Multi-pole Stepper ATS," S. I. Mazel', 2 pp

"Vestnik Svyazi - Elektro Svyaz'" No 9 (78)

A method of inspection worked out by Shcherbovskiy and Iskhmiyatov at the "Soyuztelefonstroy" Trust greatly simplifies and speeds up the process of automatic inspection of the outputs of most types of multi-pole selectors.

19T88

MAZEL', S.I.; VASIL'YEV, P.A.

Improvements applied in operating and building urban telephone networks. Vest.sviazi 14 no.9:14-16 S '54. (MLRA 7:10)

1. Glavnyy inzhener Sverdlovskoy GTS (for Vasil'yev). 2. Glavnyy inzhener tresta "Mostelefonstroy" (for Mazel').
(Telephone lines)

MAZEL', Solomon Isaakovich; DANILOV, Viktor Aleksandrovich; AKINFIYEV, B.F., otvetstvennyy redaktor; KOKOSOV, L.V., redaktor; LEONEVA, E.V., tekhnicheskiy redaktor

[City telephone lineman] Monter-spaishchik gorodskikh telefonnykh setei. Moskva, Gos. izd-vo lit-ry po voprosam sviazi i radio, 1956. 112 p. (MLRA 9:9)

(Telephone--Handbooks, manuals, etc.)

MAZEL', S., inzhener.

Mechanized laying of telephone cables. Stroitel' no.1: 31 Ja '57. (MLRA 10:2)

(Telephone cables)

MAZEL', Solomon Isaakovich; YAKOVLEV, Viktor Alekseyevich; KOKOSOV, Lev Vladimirovich; HERMAN, V.A., inzh., otv.red.; RYAZANTSEVA, M.M., red.; MARKOCH, K.G., tekhn.red.

[Mechanization of line construction of municipal telephone networks] Mekhanizatsiia stroitel'stva lineinykh sooruzhenii gorodskikh telefonnykh setei. Moskva, Gos.izd-vo lit-ry po voprosam sviazi i radio, 1960. 153 p. (MIRA 13:12)
(Telephone lines--Construction)

MAZEL', Solomon Isaakovich; USTINOV, Leonid Ivanovich; SVERDLOVA, I.S., red.; SHEFER, G.I., tekhn. red.

[Mechanization of the construction and repair operations of electric cable communication lines]Mekhanizatsiia stroitel'stva i remonta kabel'nykh linii sviazi. Moskva, Sviaz'izdat, 1962. 167 p. (MIRA 15:9)
(Electric lines—Underground)
(Telephone lines)

AFANAS'YEV, A.P.; ANUCHIN, V.G.; VINOGRADOV, K.V.; GARANINA, M.M.; GILEROVICH, M.M.; DUBROVSKIY, Ye.P.; YEVSTIGNEYEV, A.A.; IOKHVIN, M.R.; KALMYKOV, P.M.; KRENGEL', I.TS.; LOSEV, I.G.; MAYEVSKIY, F.M.; MAZEL', S.I.; MIZHERITSKIY, G.S.; NOVIKOV, M.I.; NAZAR'YEV, O.V.; PCHELKINA, I.A.; RAZUMOV, V.S.; ROZENBLYUM, I.M.; SEROV, B.P.; SKRYPNIK, T.I.; SAL'VIN, Ye.S.; SMOTRINA, V.F.; TELEPNEVA, N.S.; FIL'CHAKOV, N.I.; KHRAPUNOVA, Ye.L.; UNDREVICH, G.S.; UR'T'YEV, P.P.; SHILOV, A.A.; SHIYKOV, A.P.; KIRILLOV, L.M., red.; MARKOCH, M.G., tekhn.red.

[Regulations on the construction of minicipal telephone network lines] Pravila po stroitel'stvu lineinykh sooruzhenii gorodskikh telefonnykh setei. 2.izd. Moskva, Sviaz'izdat, 1962. 511 p. (MIRA 15:5)

1. Russia (1923- U.S.S.R.) Ministerstvo svyazi. Glavnoye upravleniye kapital'nogo stroitel'stva.
(Telephone lines)

HAZEL', S. S.

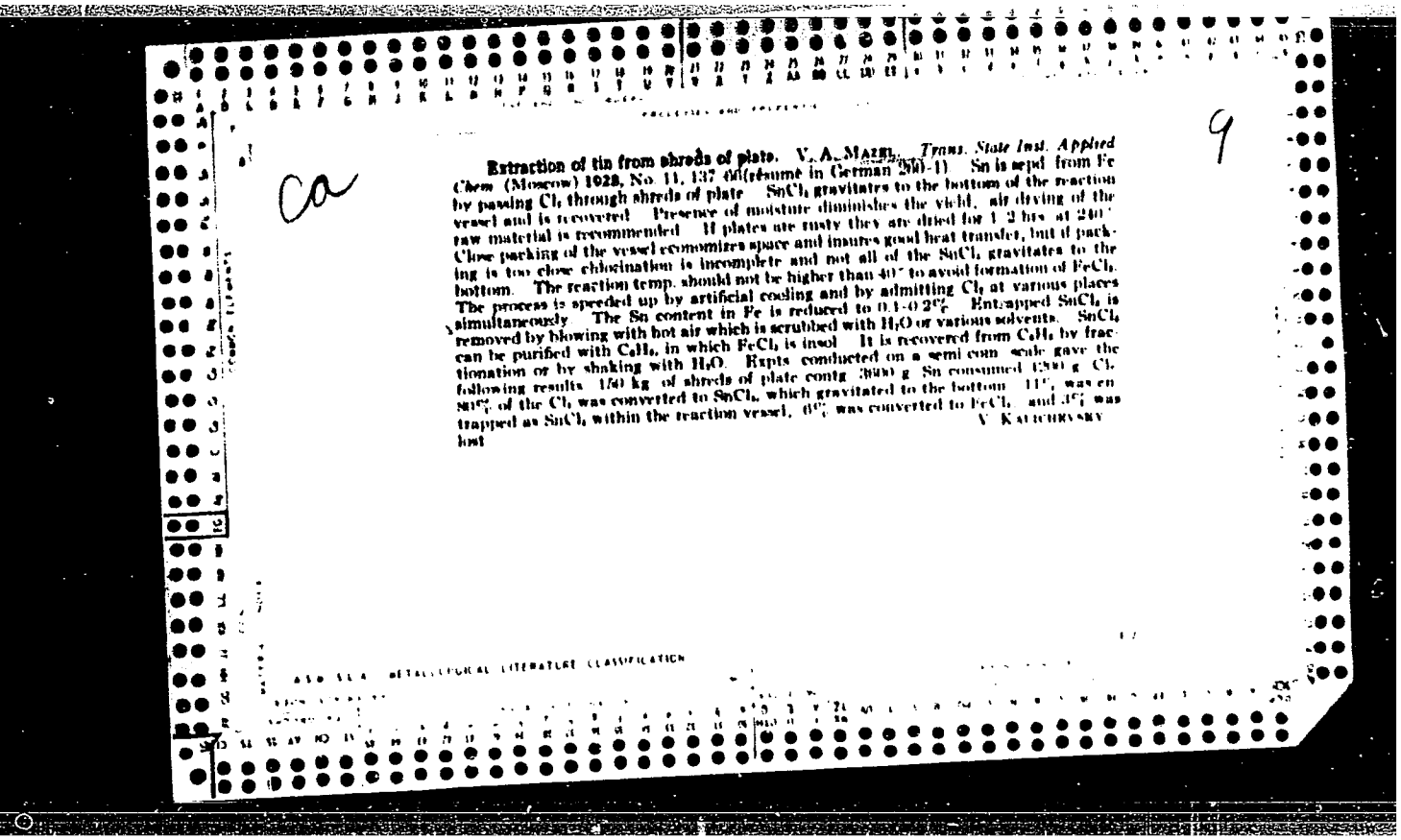
24221 HAZEL', S. S. Pervyy russkiy akademik - M. V. Lomonosov i ego znacheniye v razvitii otechestvennogo estestvoznaniya i zdravookhraneniya. (K 225-letiyu Akad. nauk SSSR). Vrachebn. delo, 1949, No. 2, STR. 73?-??.

SO: Letopis, No. 3?, 1949.

MAZEL', S.S.

Some current problems in the organization of oncological services. (MIRA 12:12)
Vop.onk. 5 no.4:489-493 '59.

1. Iz organizatsionno-metodicheskogo kabineta Ivanovskogo oblastnogo onkologicheskogo dispansera (glavnyy vrach - kand.med.nauk A.N. Styskin).
(NEOPLASMS, prev. & control,
in Russia (Rus))



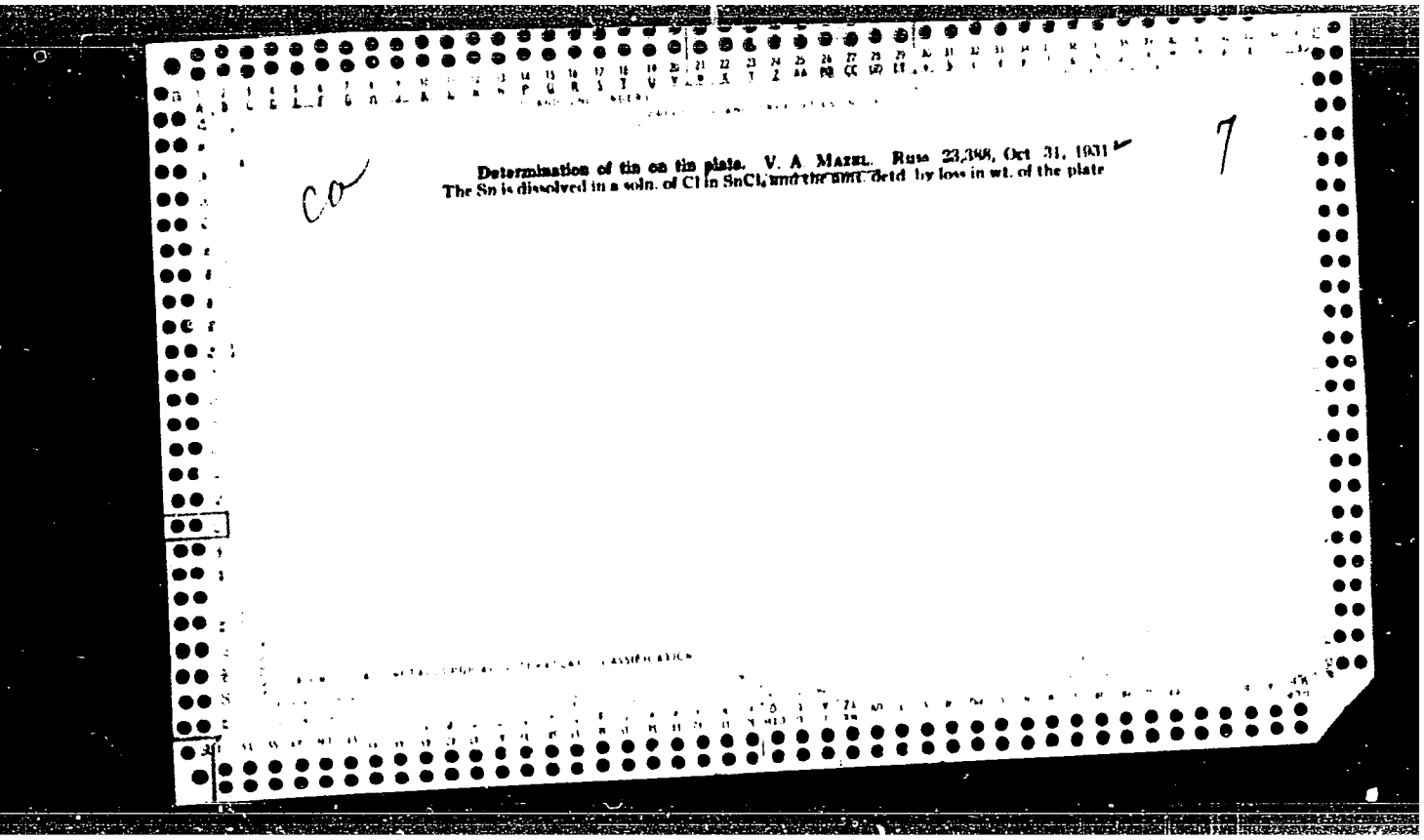
Ca

9

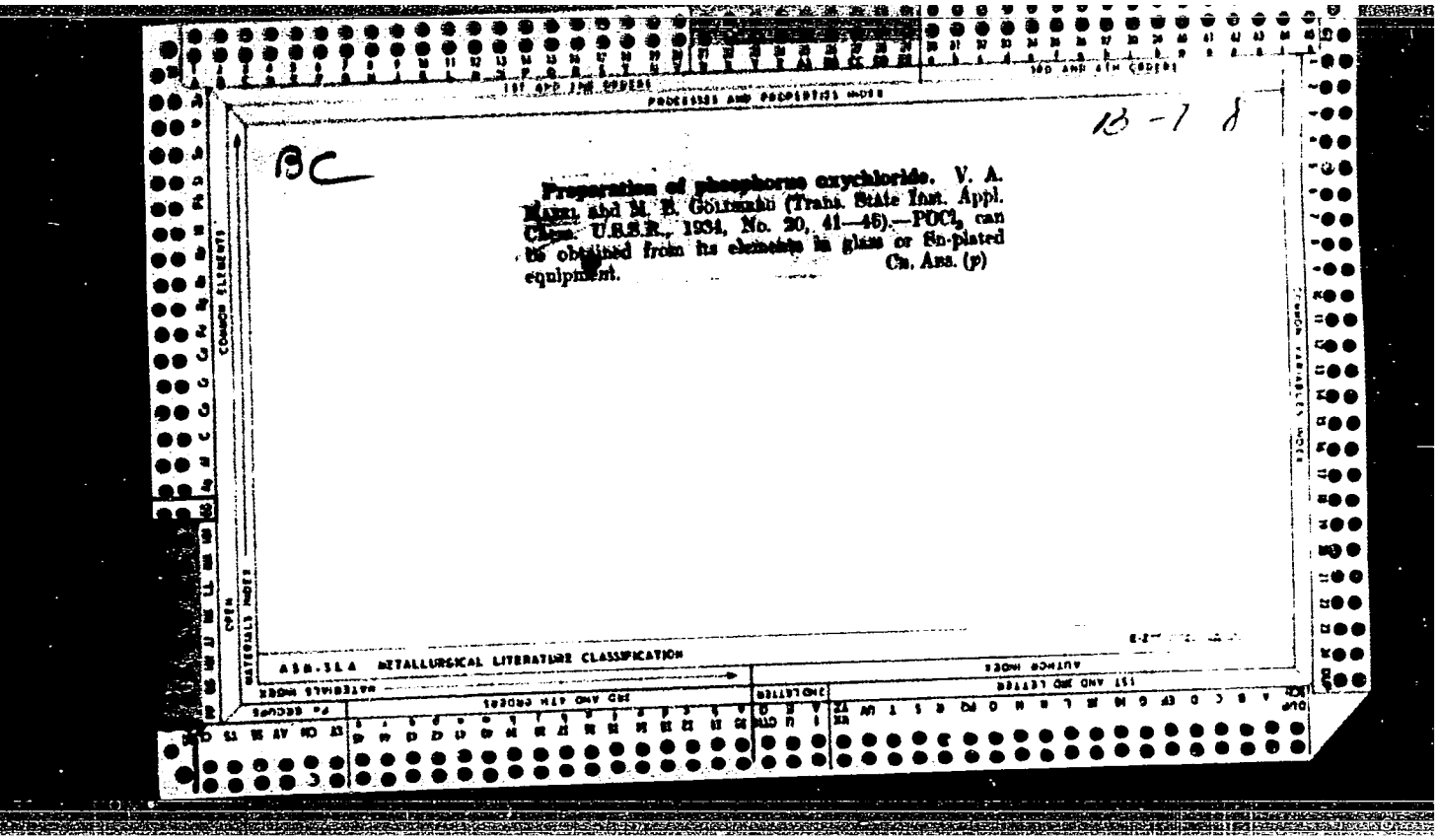
Extraction of tin from shreds of plate. V. A. Mazel. *Trans. State Inst. Applied Chem.* (Moscow) **1928**, No. 11, 137-60(résumé in German 260-1). Sn is sepd. from Fe by passing Cl through shreds of plate. $SnCl_4$ gravitates to the bottom of the reaction vessel and is recovered. Presence of moisture diminishes the yield; air drying of the raw material is recommended. If plates are rusty they are dried for 1-2 hrs. at 240°. Close packing of the vessel economizes space and insures good heat transfer, but if packing is too close chlorination is incomplete and not all of the $SnCl_4$ gravitates to the bottom. The reaction temp. should not be higher than 40° to avoid formation of $FeCl_3$. The process is speeded up by artificial cooling and by admitting Cl_2 at various places simultaneously. The Sn content in Fe is reduced to 0.1-0.2%. Entrapped $SnCl_4$ is removed by blowing with hot air which is scrubbed with H_2O or various solvents. $SnCl_4$ can be purified with C_6H_6, in which $FeCl_3$ is insol. It is recovered from C_6H_6 by fractionation or by shaking with H_2O. Expts. conducted on a semi-com. scale gave the following results: 150 kg. of shreds of plate contg. 3000 g. Sn consumed 4500 g. Cl_2. 80% of the Cl_2 was converted to $SnCl_4$, which gravitated to the bottom; 11% was entrapped as $SnCl_4$ within the reaction vessel; 6% was converted to $FeCl_3$; and 3% was lost.

V. Karchevsky

A50 X14 METALLURGICAL LITERATURE CLASSIFICATION



Determination of tin on tin plate. V. A. Mazel. Russ 23,388, Oct 31, 1931
The Sn is dissolved in a soln. of Cl in $SnCl_4$ and the amt. detd by loss in wt. of the plate

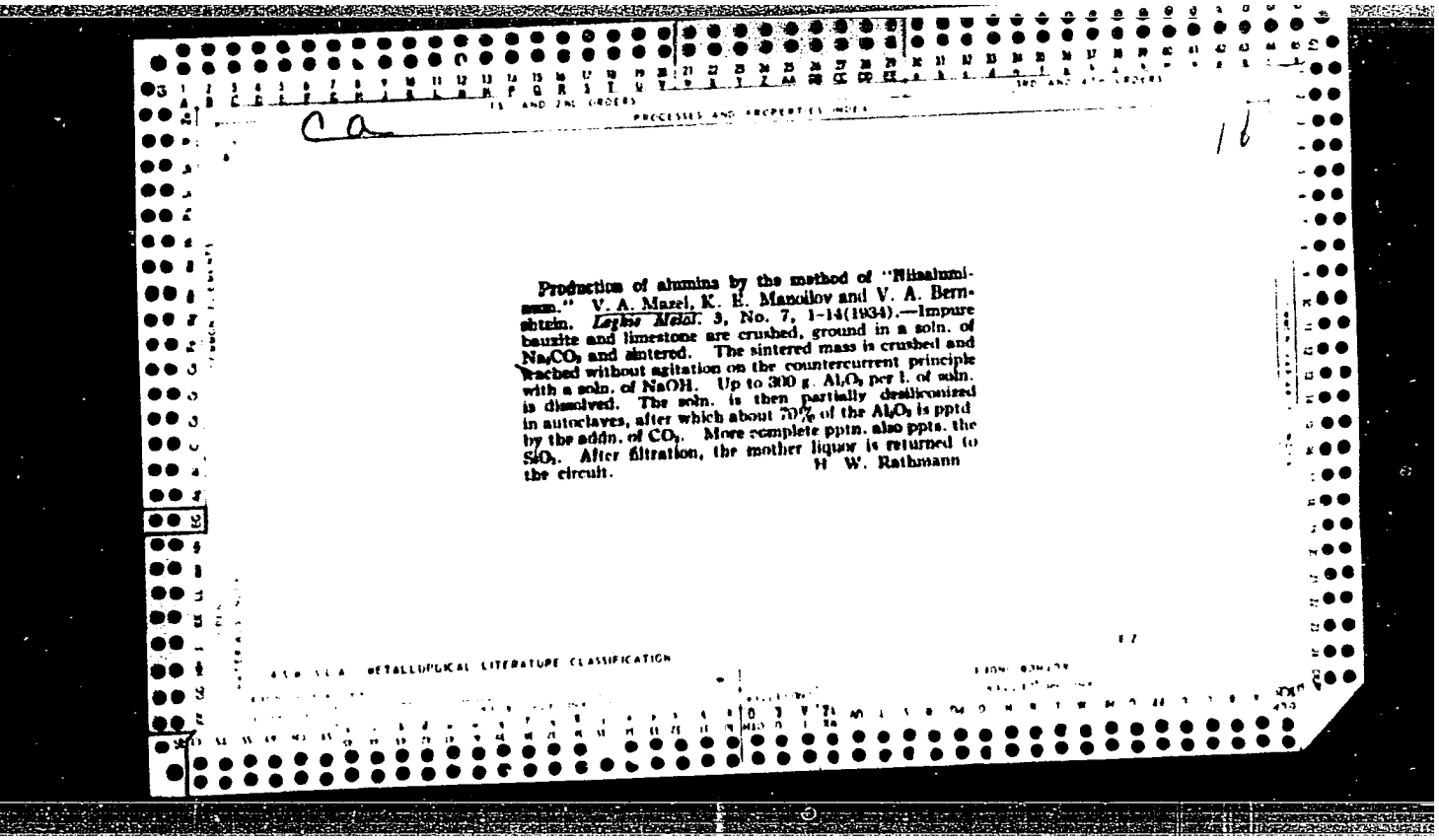


BC

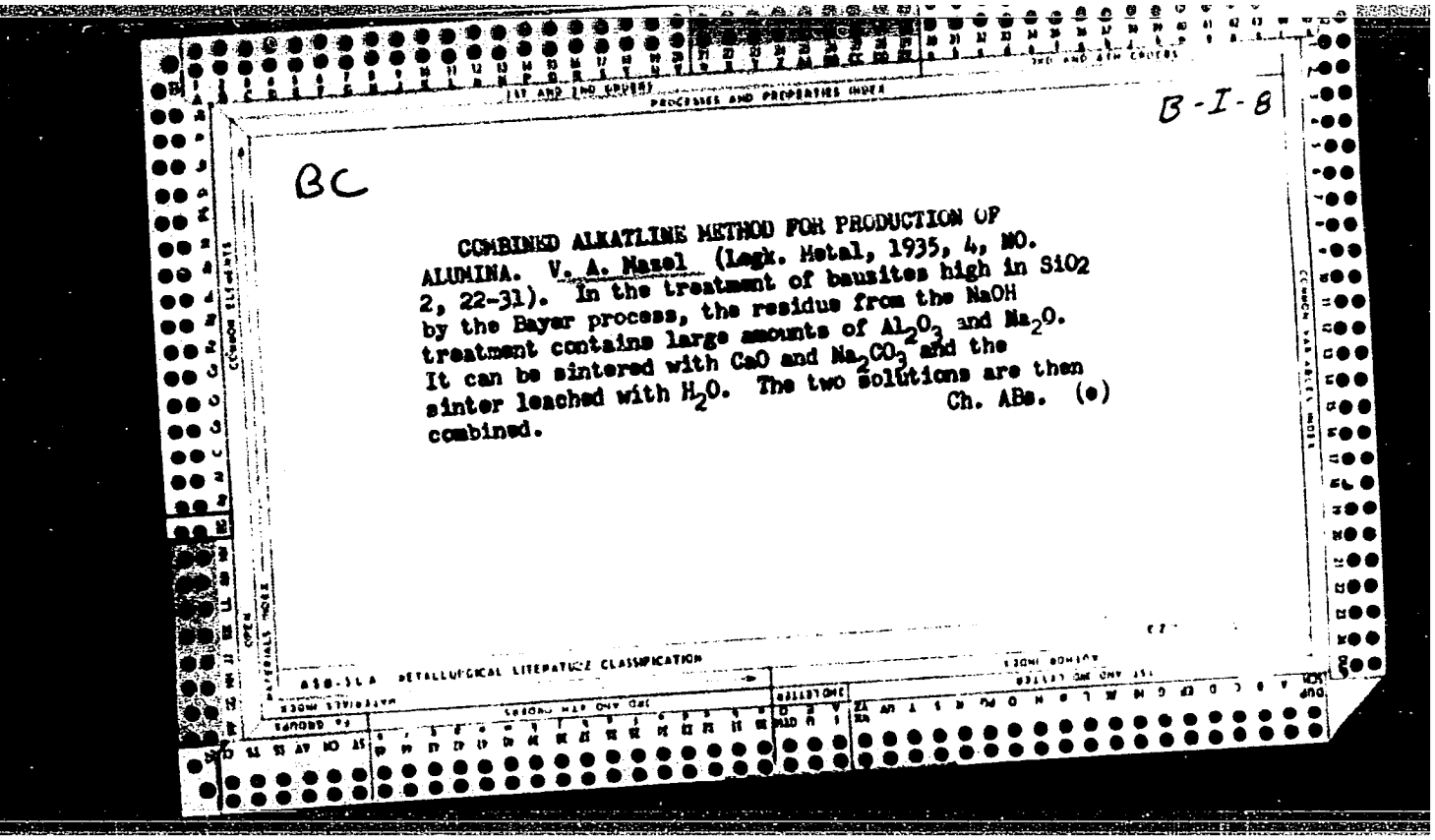
13-1 8

Preparation of phosphorus oxychloride. V. A. Kazan, and M. E. Goltzman (Trans. State Inst. Appl. Chem. U.S.S.R., 1934, No. 30, 41—46).—$POCl_3$ can be obtained from its elements in glass or tin-plated equipment. Ch. Abs. (p)

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Production of alumina by the method of "Nitsalumi-nium." V. A. Mazel, K. E. Manoilov and V. A. Bernshtein. *Legkie Metal.* 3, No. 7, 1-14(1934).—Impure bauxite and limestone are crushed, ground in a soln. of Na_2CO_3 and sintered. The sintered mass is crushed and leached without agitation on the countercurrent principle with a soln. of NaOH. Up to 300 g. Al_2O_3 per l. of soln. is dissolved. The soln. is then partially desilliconized in autoclaves, after which about 70% of the Al_2O_3 is ppted by the addn. of CO_2. More complete ppta. also ppts. the SiO_2. After filtration, the mother liquor is returned to the circuit. H. W. Rathmann

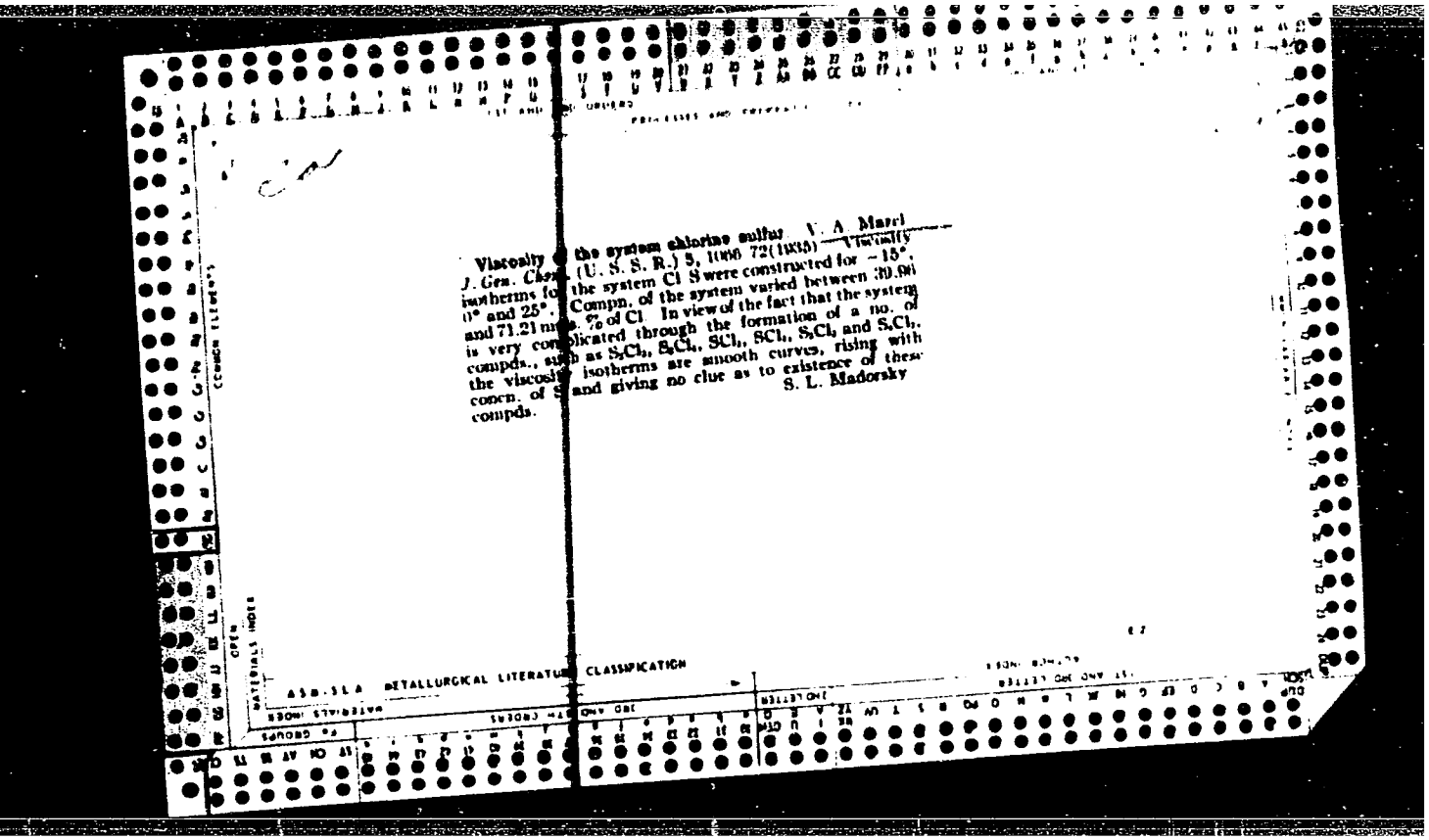


B-I-8

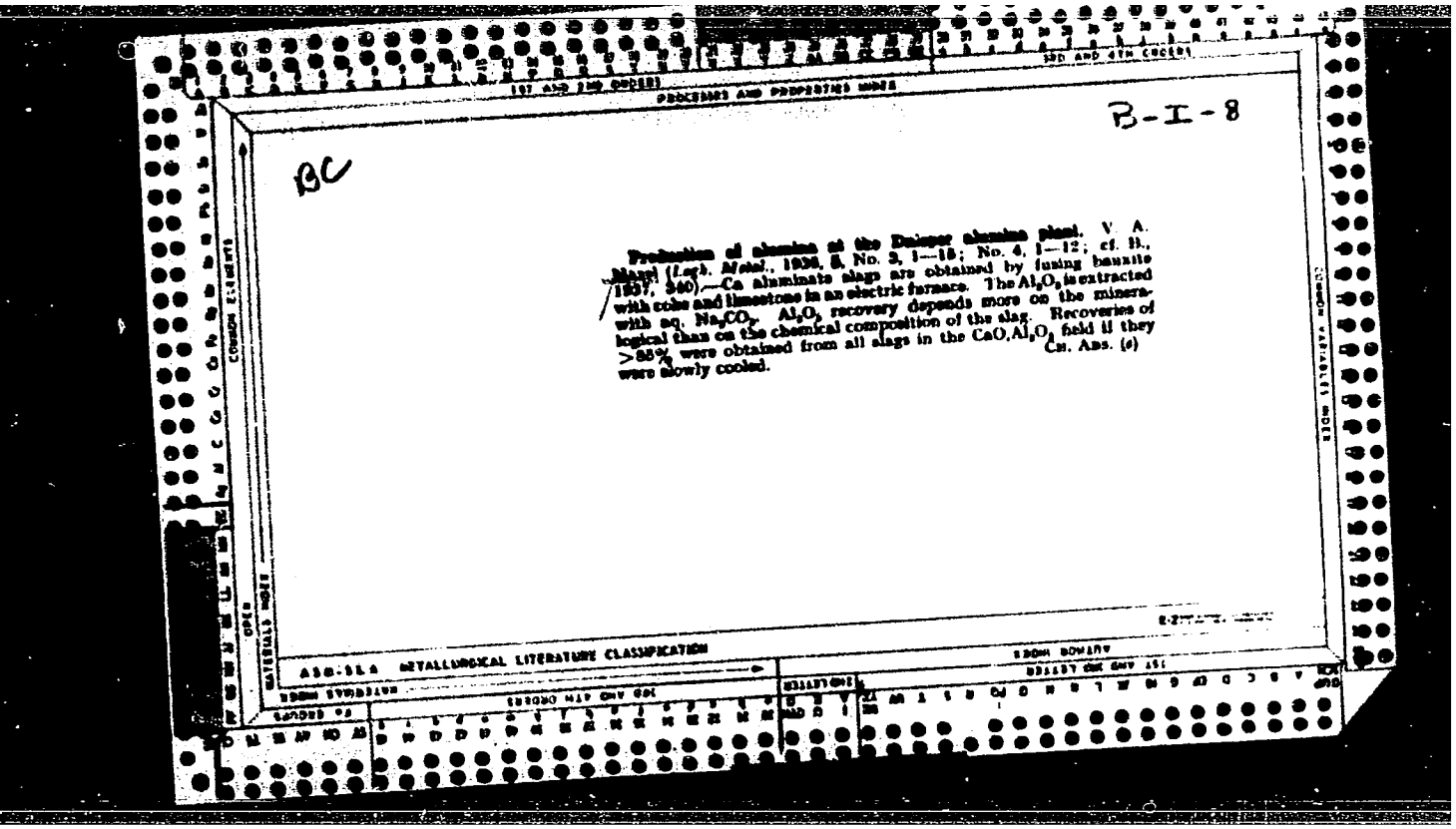
BC

COMBINED ALKATLINE METHOD FOR PRODUCTION OF ALUMINA. V. A. Nasel (Legk. Metal, 1935, 4, NO. 2, 22-31). In the treatment of bauxites high in SiO_2 by the Bayer process, the residue from the NaOH treatment contains large amounts of Al_2O_3 and Na_2O. It can be sintered with CaO and Na_2CO_3 and the sinter leached with H_2O. The two solutions are then combined.

Ch. ABs. (e)



Viscosity of the system chlorine-sulfur. V. A. Marel
J. Gen. Chem. (U. S. S. R.) 5, 1096-72(1935).—Viscosity isotherms for the system Cl-S were constructed for −15°, 0° and 25°. Compn. of the system varied between 30.98 and 71.21% of Cl. In view of the fact that the system is very complicated through the formation of a no. of compds., such as S_2Cl_2, SCl_4, SCl_2, SCl_4, S_2Cl_2 and SCl_2, the viscosity isotherms are smooth curves, rising with concn. of S and giving no clue as to existence of these compds.
S. L. Madorsky

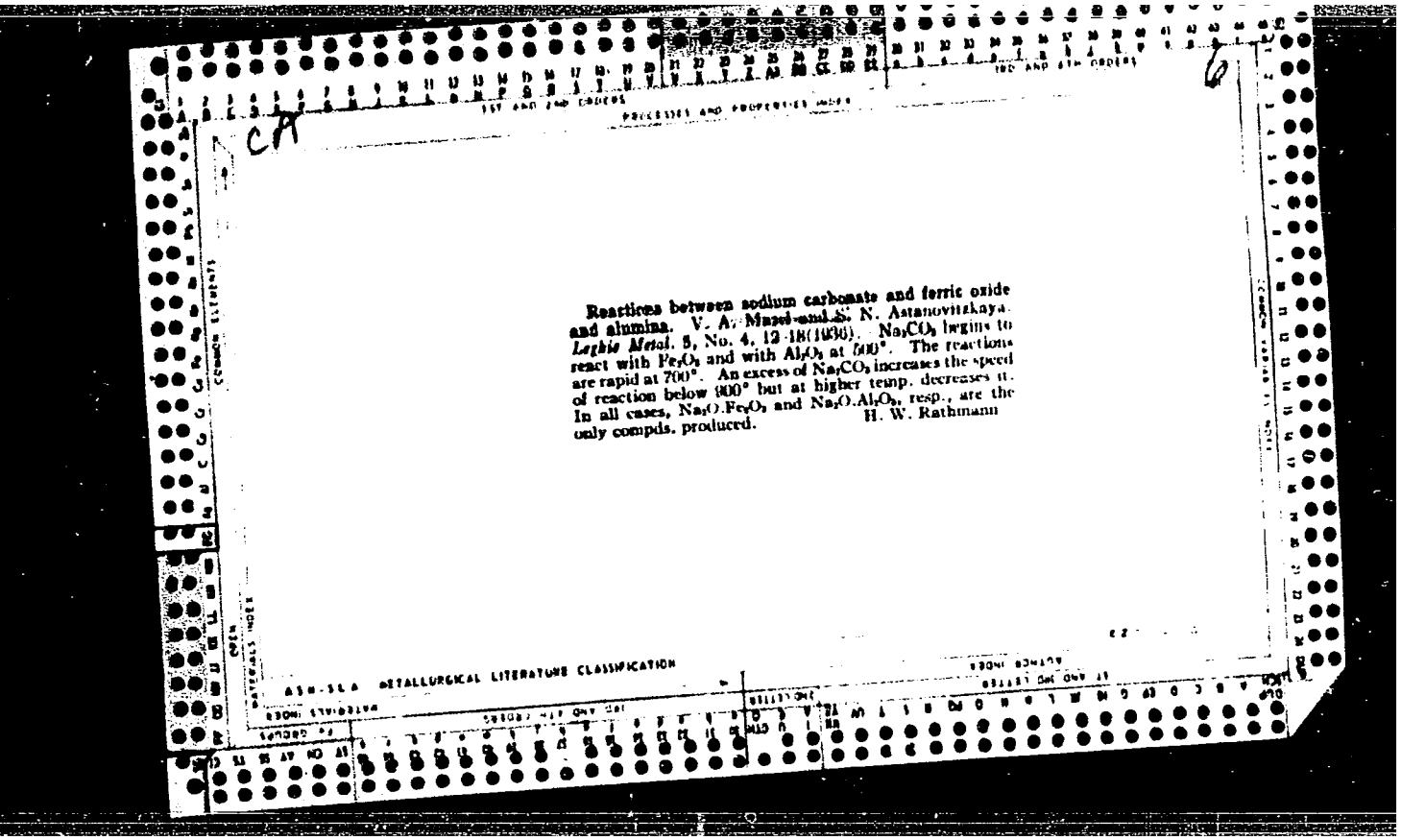


B-I-8

BC

Production of alumina at the Dnieper alumina plant. V. A. Shpirt (*Legk. Metal.*, 1936, 5, No. 3, 1—15; No. 4, 1—12; cf. B., 1937, 340).—Ca aluminate slags are obtained by fusing bauxite with coke and limestone in an electric furnace. The Al_2O_3 is extracted with aq. Na_2CO_3. Al_2O_3 recovery depends more on the mineralogical than on the chemical composition of the slag. Recoveries of >85% were obtained from all slags in the CaO,Al_2O_3 field if they were slowly cooled. Chem. Abs. (e)

A58-914 METALLURGICAL LITERATURE CLASSIFICATION



Reactions between sodium carbonate and ferric oxide and alumina. V. A. Mazel and S. N. Astanovitzkaya. *Legkie Metal.* 5, No. 4, 12-18(1930). Na_2CO_3 begins to react with Fe_2O_3 and with Al_2O_3 at 500°. The reactions are rapid at 700°. An excess of Na_2CO_3 increases the speed of reaction below 900° but at higher temp. decreases it. In all cases, $Na_2O.Fe_2O_3$ and $Na_2O.Al_2O_3$, resp., are the only compds. produced. H. W. Rathmann

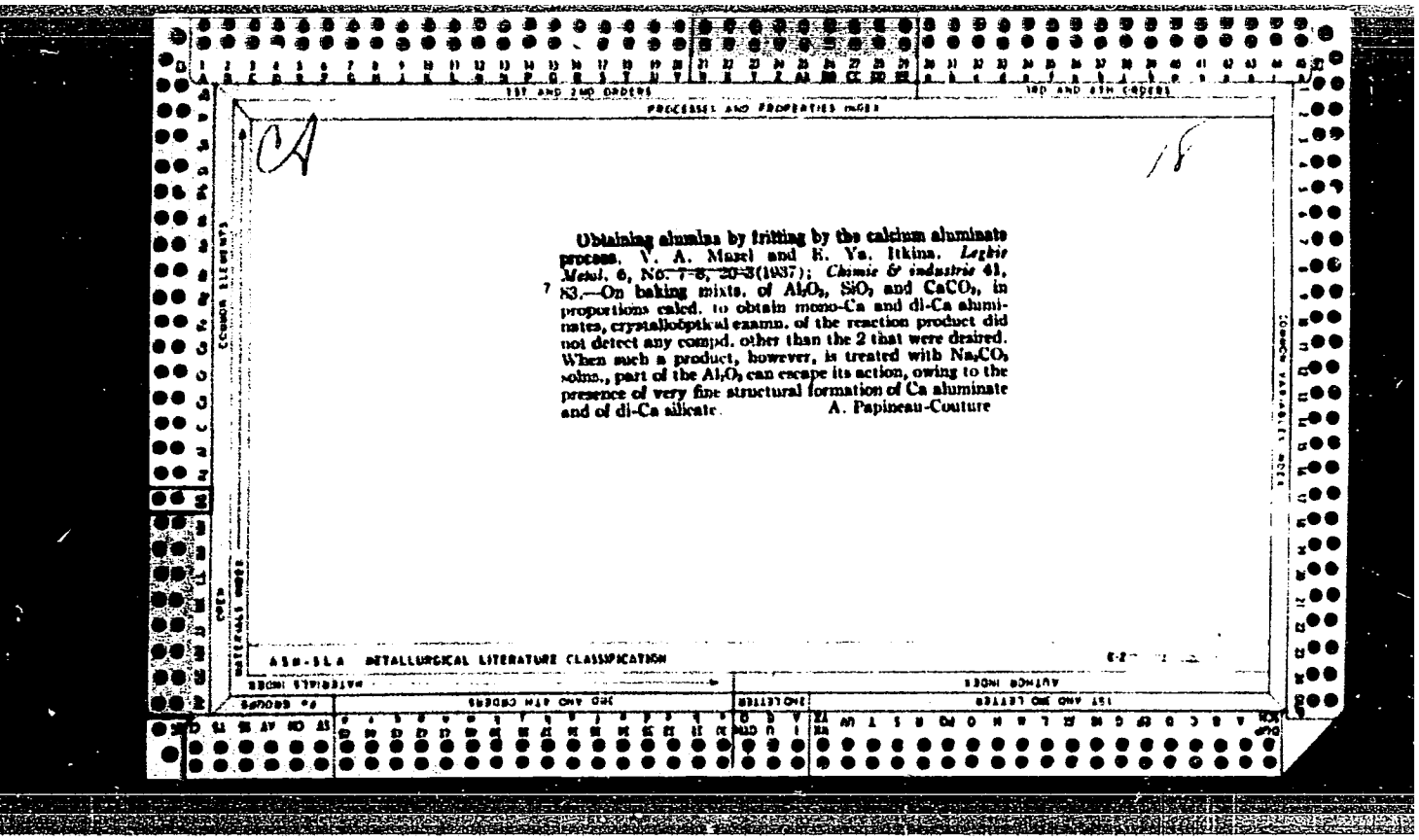
MAZEL, V. A. and BOGOLOPOV, N. I., et. al.

"Production of Aluminum Oxide and alkalis from Nephelite by the Alkaline Method. Trans. State Inst. Applied Chem. (U.S.S.R.) No 29, 5 266 (1936) (in English pp 267-70).

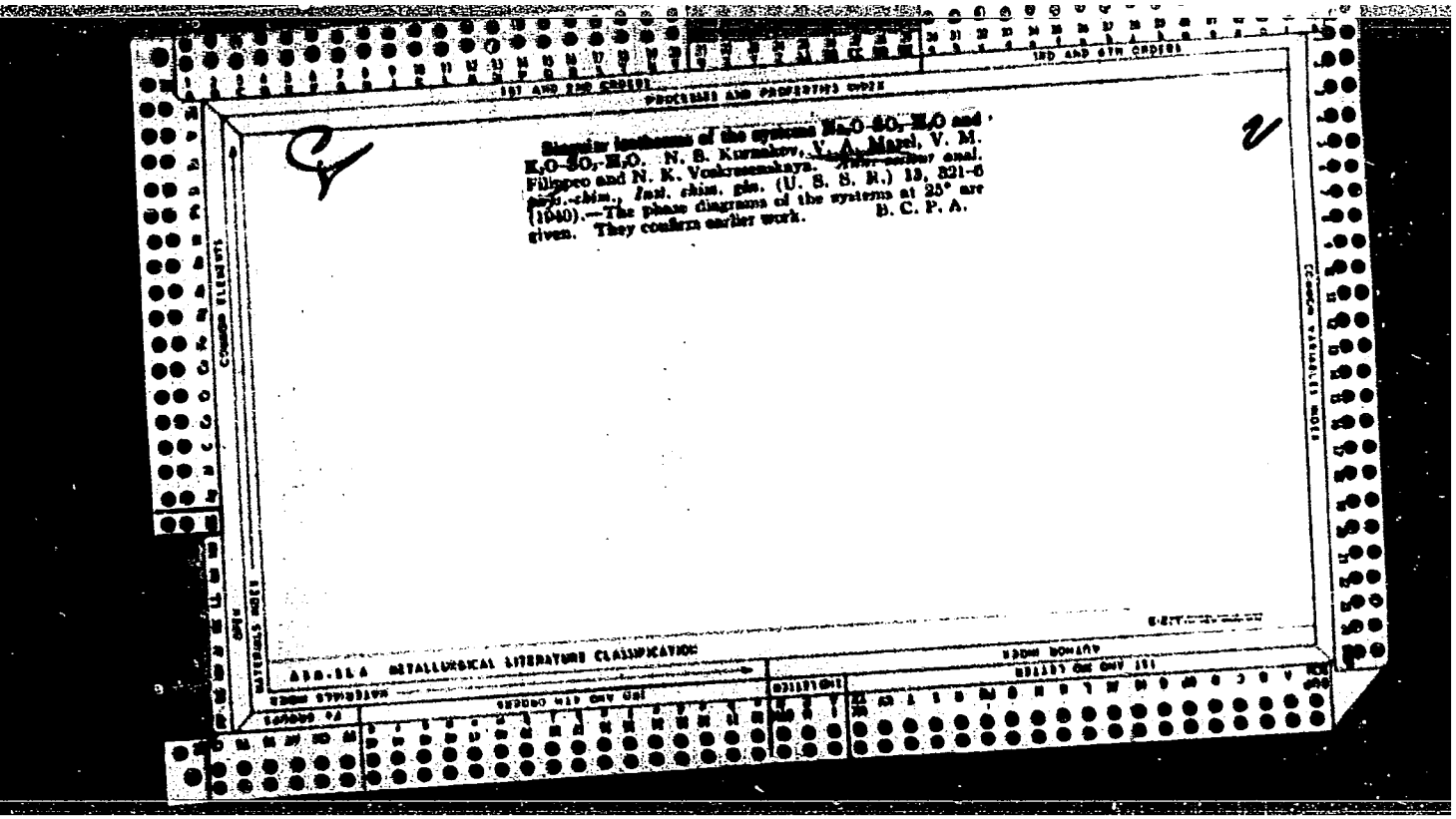
MAZEL', V. A.

Technology of manufacturing aluminum oxide; basic processes and equipment Textbook. Leningrad, Glav. red. lit-ry po tsvetnoi metallurgii, 1937. (Mic 53-591)
Collation of the original as determined from the film: 354 p.

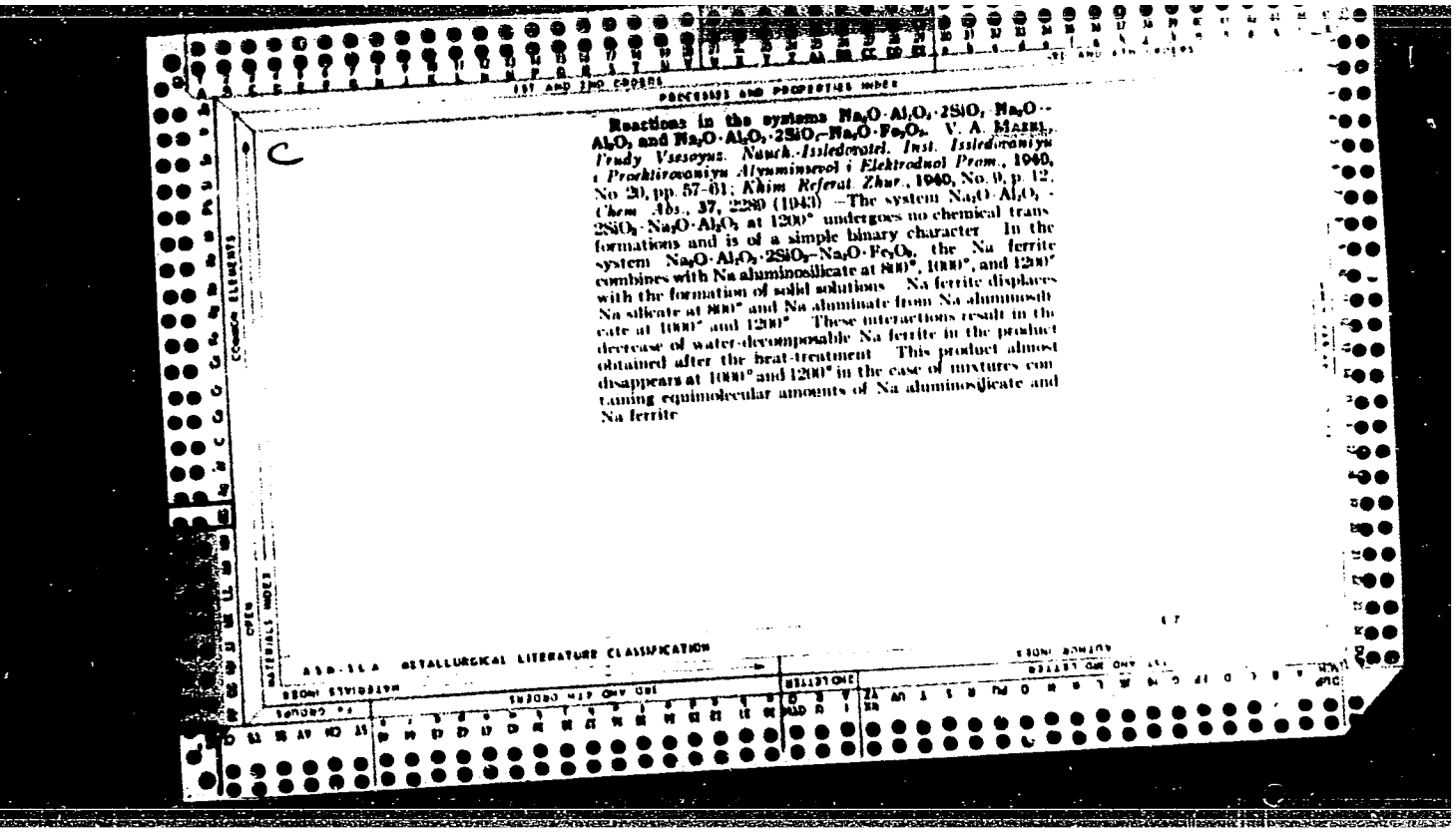
Microfilm TF-11



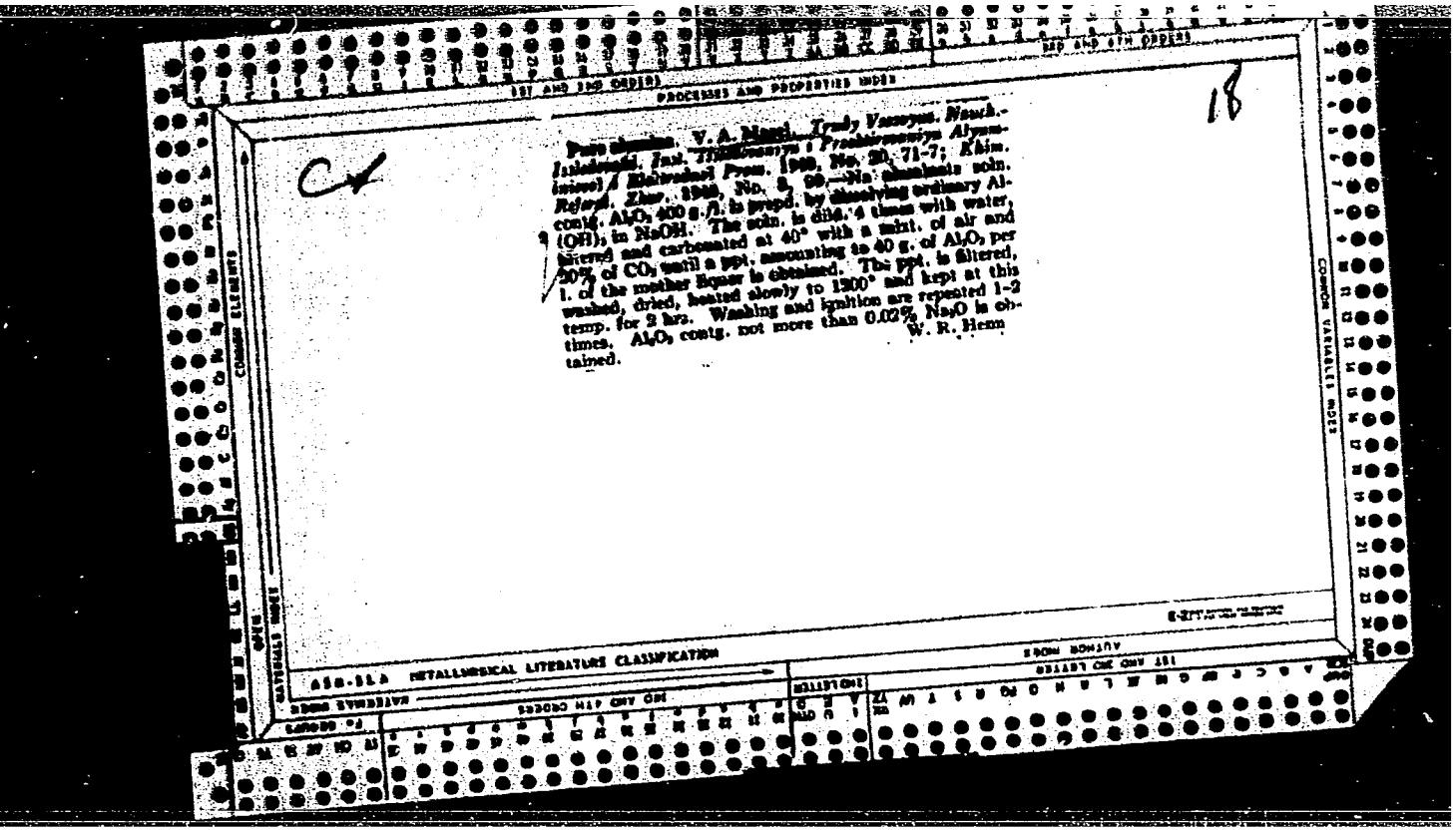
Obtaining alumina by fritting by the calcium aluminate process. V. A. Masel and E. Ya. Itkina. *Legkie Metal.*, 6, No. 7-8, 20-3(1937); *Chimie & industrie* 41, 83.—On baking mixts. of Al_2O_3, SiO_2 and $CaCO_3$, in proportions calcd. to obtain mono-Ca and di-Ca aluminates, crystallooptical examn. of the reaction product did not detect any compd. other than the 2 that were desired. When such a product, however, is treated with Na_2CO_3 soln., part of the Al_2O_3 can escape its action, owing to the presence of very fine structural formation of Ca aluminate and of di-Ca silicate. A. Papineau-Couture



Ternary isotherms of the systems K_2O-SO_3-H_2O and K_2O-SO_3-H_2O. N. S. Kurnakov, V. A. Mazel, V. M. Filippeo and N. K. Voskresenskaya. [illegible] anal. gen.-chim., *Inst. chim. gén.* (U. S. S. R.) 13, 321-6 (1940).—The phase diagrams of the systems at 25° are given. They confirm earlier work. B. C. P. A.



Reactions in the systems $Na_2O \cdot Al_2O_3 \cdot 2SiO_2$, Na_2O–Al_2O_3 and $Na_2O \cdot Al_2O_3 \cdot 2SiO_2$–$Na_2O \cdot Fe_2O_3$. V. A. Mazel. *Trudy Vsesoyuz. Nauch.-Issledovatel. Inst. Issledovaniya i Proektirovaniya Alyuminievoi i Elektrodnoi Prom.*, 1940, No 20, pp. 57–61; *Khim. Referat. Zhur.*, 1940, No. 0, p. 12. *Chem. Abs.*, 37, 2280 (1943). —The system $Na_2O \cdot Al_2O_3 \cdot 2SiO_2$–$Na_2O \cdot Al_2O_3$ at 1200° undergoes no chemical transformations and is of a simple binary character. In the system $Na_2O \cdot Al_2O_3 \cdot 2SiO_2$–$Na_2O \cdot Fe_2O_3$, the Na ferrite combines with Na aluminosilicate at 800°, 1000°, and 1200° with the formation of solid solutions. Na ferrite displaces Na silicate at 800° and Na aluminate from Na aluminosilicate at 1000° and 1200°. These interactions result in the decrease of water-decomposable Na ferrite in the product obtained after the heat-treatment. This product almost disappears at 1000° and 1200° in the case of mixtures containing equimolecular amounts of Na aluminosilicate and Na ferrite.

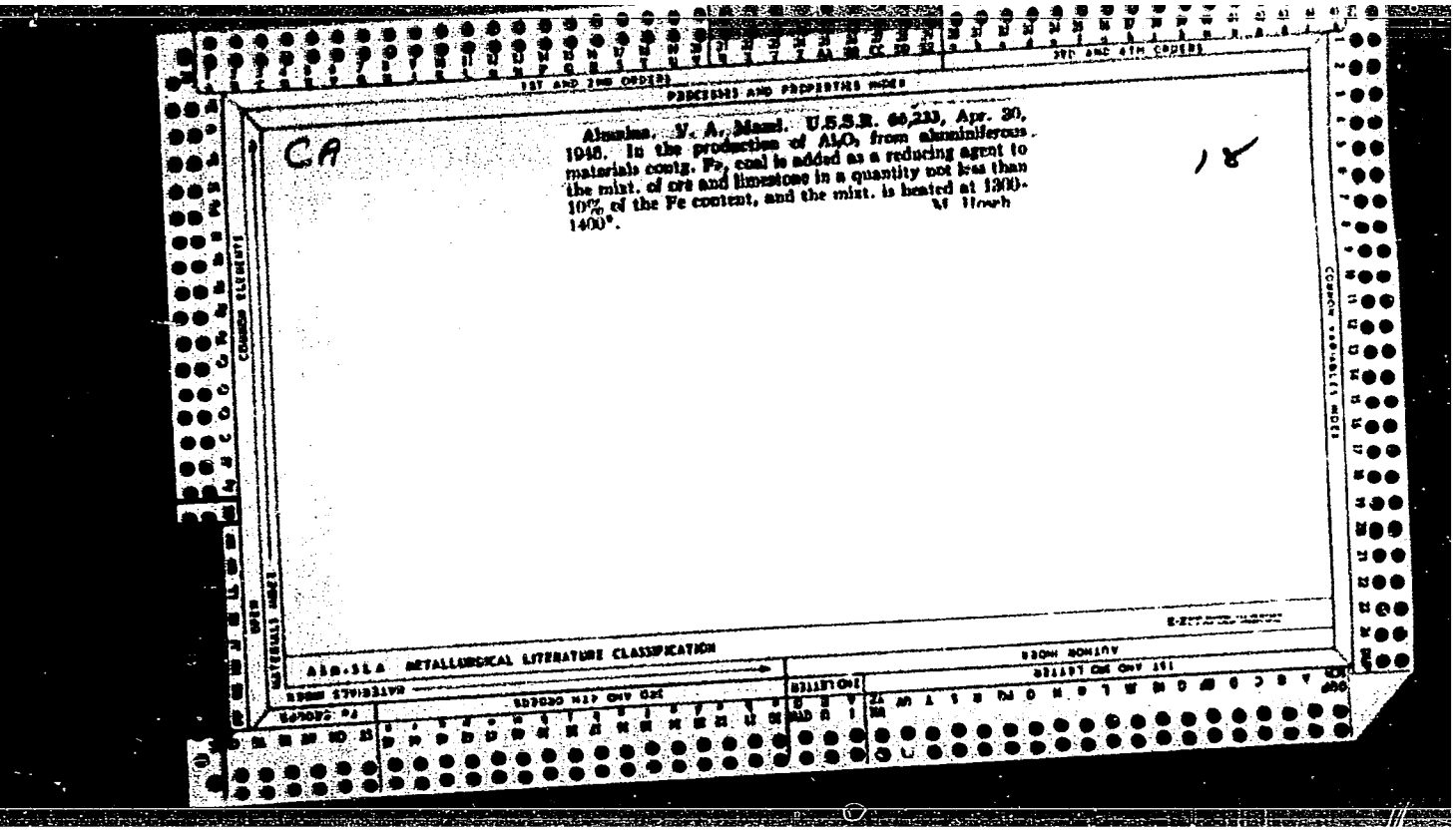


C4

18

Pure chemicals. V. A. Mikul. *Trudy Vsesoyuz. Nauch.-Issledovatel. Inst. Tekhnicheskoye i Prakticheskoye Alyuminiyevoi Promyshlennosti*, 1940, No. 20, 71-7; *Khim. Referat. Zhur.*, 1940, No. 3, 98.—Na aluminate soln. contg. Al_2O_3 400 g./l. is prepd. by dissolving ordinary $Al(OH)_3$ in NaOH. The soln. is diluted 4 times with water, filtered and carbonated at 40° with a mixt. of air and 20% of CO_2 until a ppt. amounting to 40 g. of Al_2O_3 per l. of the mother liquor is obtained. The ppt. is filtered, washed, dried, heated slowly to 1200° and kept at this temp. for 2 hrs. Washing and ignition are repeated 1-2 times. Al_2O_3 contg. not more than 0.02% Na_2O is obtained.

W. R. Henn



CA

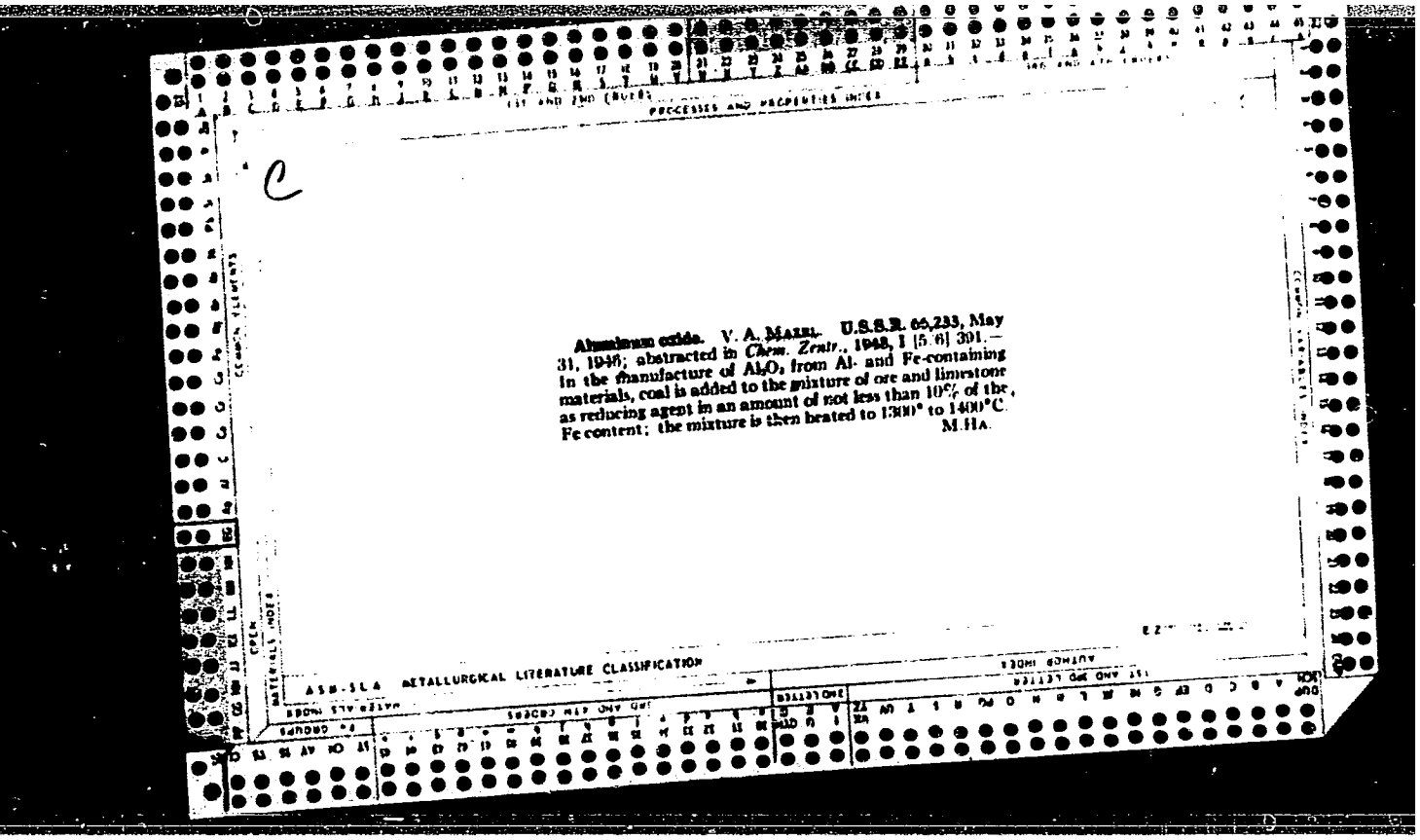
18

Alumina. V. A. Masol. U.S.S.R. 66,233, Apr. 30, 1946. In the production of Al_2O_3 from aluminiferous materials contg. Fe_2, coal is added as a reducing agent to the mixt. of ore and limestone in a quantity not less than 10% of the Fe content, and the mixt. is heated at 1300-1400°.

18

CA

Alumina from calcitic bauxite by the Bayer method. V. A. Mazel and S. I. Astanovitskaya. U.S.S.R. 69,604, Nov. 30, 1947. To prevent dealkalization of return liquor by carbonates, the return liquors are satd. with soda in the presence of CO_2. M. Hoseh



Aluminum oxide. V. A. Mazel. U.S.S.R. 66,233, May 31, 1946; abstracted in *Chem. Zentr.*, 1948, I [5/6] 391.— In the manufacture of Al_2O_3 from Al- and Fe-containing materials, coal is added to the mixture of ore and limestone as reducing agent in an amount of not less than 10% of the Fe content; the mixture is then heated to 1300° to 1400°C. M.Ha.

MAZEL', V. A.

MAZEL', V. A.

Proizvodstvo glinozema. Dopushcheno v kachestve uchebnika dlia metallurgicheskikh tekhnikumov. Leningrad, Gostekhizdat lit-ry po chernoi i tsvetnoi metallurgii, 1950. 504 p., illus., diagrs.

Title tr.: Alumina production in the U. S. S. R. Approved as a textbook for metallurgical schools.

TN775.M3

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

MAZEL', Vladimir Abramovich, professor, doktor; ALEKSEYEV, N.S., inzhener, retsenzent; PUSHKAR', Z.A., inzhener, retsenzent; BELYAYEV, A.I., redaktor; AVRUTSKAYA, R.F., redaktor; BEKKER, O.G., tekhnicheskiy redaktor.

[Alumina production]Proizvodstvo glinozema. Moskva, Ges. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1955.430 p. (MLRA 9:6)
(Alumina)

MAZEL', V.A.

137-58-5-9266

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 69 (USSR)

AUTHOR: Mazel', V.A.

TITLE: Characteristic Constants of Bauxite and Methods of Their Determination (Kharakteristicheskiye konstanty boksita i metodika ikh opredeleniya)

PERIODICAL: Tr. Vses. alyum.-magn. in-ta, 1957, Nr 39, pp 7-18

ABSTRACT: The method proposed utilizes characteristic curves in order to study the Bayer process of leaching of bauxites; it avoids the drawbacks of the standard method which is based on a computation of the quantitative relationship between the bauxite and the reverse solution introduced into the leaching process. The characteristic curves represent graphically the relationship expressed by the following equation $\frac{(n - 0.01zx)}{(0.01Ax\ 0.01B+a)} \cdot \frac{62}{102} = \alpha_k$

where α_k is the caustic module of the aluminate solution; n is the amount of Na_2O_k in g/l, a is the amount of Al_2O_3 in g/l; A is the amount of Al_2O_3 contained in the bauxite and expressed in %; B is the yield of Al_2O_3 in the leaching process, also

Card 1/2

Characteristic Constants of Bauxite and Methods of Their Determination

expressed in %; x is the ratio between the amounts of bauxite and the reverse aluminate solution employed in the leaching process and expressed in g/ℓ ; and z is the amount of NaOH (per 100 g of original bauxite) being withdrawn from the leaching zone or being introduced into it for the purpose of tying up the silica contained in the bauxite into insoluble compounds; also when decaustification and caustification takes place; 0.01xz is the same as z but it refers to 1 liter of original reverse solution. The experimental method proposed for the construction of curves involves the following steps: the bauxite is leached out (in successively changing amounts) at a constant temperature and sufficient time is allowed for the process to attain equilibrium; percentile extraction of Al_2O_3 and the caustic module are computed for every batch of bauxite, and appropriate experimental curves are plotted from the data obtained. The characteristic curves provide information on the technological potentialities of any given bauxite, not only with regard to Al_2O_3 extraction, but also with regard to the caustic module of the resulting aluminate solution.

N. P.

1. Bauxite--Processing 2. Aluminum oxide--Production

Card 2/2

137-58-6-11929

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 107 (USSR)

AUTHOR: Mazel', V.A.

TITLE: A Method of Studying the Relationship Between the Major Technical Parameters of the Bayer Process and Its Technical and Economic Efficiency (O metodike izucheniya vzaimozavisimosti osnovnykh tekhnologicheskikh parametrov protsessa Bayera i yego tekhniko-ekonomicheskoy effectivnosti)

PERIODICAL: Tr. Vses. alyumin.-magn. in-ta, 1957, Nr 39, pp 87-93

ABSTRACT: As an initial experiment, the author suggests a graphic method of determining the technical and economic efficiency of the Bayer Process.

A.P.

1. Aluminum ores--Processing

Card 1/1

SOV/81-59-5-14572

Translation from: Referativnyy zhurnal, Khimiya, 1959, Nr 5, p 52 (USSR)

AUTHOR: Mazel', V.A.

TITLE: A Study of the Interaction and States of Equilibrium in the $Na_2O.Al_2O_3$-$Na_2O.Fe_2O_3$- $2CaO.SiO_2$ System at Sintering Temperatures

PERIODICAL: Tr. Vses. alyumin.-magn. in-ta, 1957, Nr 39, pp 115 - 128

ABSTRACT: Samples, consisting of mixtures of compound oxides, lying in the $Na_2O.Al_2O_3$ (I) - $Na_2O.Fe_2O_3$ (II) - $2CaO.SiO_2$ triangle, were subjected to sintering at various temperatures, determining the initial melting point (sinter formation), and to subsequent lixiviation with either water or solutions of NaOH. The results of the experiments are represented by triangular diagrams. In the I - II - III system a large region was found where this system is a 5-component one. Beyond the limits of this region there is a part of a 3-component system.

V. Shatskiy

Card 1/1

MAZEL', V A.

137-58-5-9267

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 70 (USSR)

AUTHOR: Mazel', V.A.

TITLE: Productivity of a Rotary Furnace Employed for Sintering of a Bauxite Charge (O proizvoditel'nosti vrashchayushcheysya pechi pri spekanii boksitovoy shikhty)

PERIODICAL: Tr. Vses. alyumin.-magn. in-ta, 1957, Nr 39, pp 133-146

ABSTRACT: The author makes a comparative analysis of the thermotechnical and technological processes occurring in rotary furnaces during the roasting of bauxite and cement charges. The specific fuel consumption for a bauxite charge is 0 76 of the amount of fuel consumed in the case of a cement charge i e , with identical amounts of fuel the productivity of the bauxite furnace will be 1.31 greater. In terms of the technological process, the bauxite furnace is composed of three zones a combustion zone, a reaction zone, and a zone of evaporation. The productivity of each zone is determined by its own laws, while the overall productivity of the furnace is determined by the efficiency of the least productive zone. The conditions required to increase the productivity of each zone are examined; this includes increasing

Card 1/2

137-58-5-9267

Productivity of a Rotary Furnace (cont.)

the output of the burners in the combustion zone to their maximum permissible rating, employment of fuel with greater heating value, and addition of powdered fuel to the charge. A major step toward increased productivity of the reaction zone is the installation of heat exchange devices and the greatest increase in temperature. The productivity of the evaporation zone is raised by increasing its volume (which is accomplished by means of lengthening the cone of pulp spray), by increasing the diameter of the drum in this zone, and by reducing the amount of moisture in the pulp.

A. P.

1. Furnaces--Effectiveness 2. Bauxite--Processing 3. Aluminum oxide --Production

Card 2/2

137-58-6-11910

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 104 (USSR)

AUTHOR: Mazel', V.A.

TITLE: The Mechanism of the Leaching Process of Aluminate Sinters (O mekhanizme protsessa vyshchelachivaniya alyuminatnykh spekov)

PERIODICAL: Tr. Vses. alyumin.-magn. in-ta, 1957, Nr 39, pp 170-180

ABSTRACT: The mechanism of the leaching of aluminate sinters is examined in relation to the porosity of their structure and also in relation to the effect of that structure upon the direction and quantity of secondary losses of useful components in leaching.

N.P.

1. Sintered aluminum ores--Processing

Card 1/1

MAZEL', V.A.

137-58-4-6797

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 69 (USSR)

AUTHOR: Mazel', V.A.

TITLE: On the Role of the Clinker Cooling Schedule in the Region of High Temperatures When Aluminum Oxide is Produced by Sintering with Limestone (O roli rezhima okhlazhdeniya spekov v oblasti vysokikh temperatur pri poluchenii okisi alyuminiya spekaniyem s izvestnyakom)

PERIODICAL: Tr. Vses. alyumin.-magn. in-ta 1957, Nr 39, pp 203-213

ABSTRACT: In the production of Al_2O_3 by sintering Al_2O_3-bearing raw material with limestone to yield self-slaking clinker it is necessary to create cooling conditions that will assure recrystallization of the sintering products in the direction of differentiation and increase in the size of the various crystalline phases of which they are composed. Slow cooling of the sinter in the high-temperature region is required, although these temperatures should be lower than the m.p. of the material, yet as close to it as possible.

G.S.

Card 1/1 1. Aluminum oxide--Cooling methods

MAZEL', V.A.

137-58-4-6796

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 69 (USSR)

AUTHORS: Mazel', V.A., Yeliseyeva, A.A.

TITLE: Obtaining Alumina from Kaolins by Sintering with Limestone (Polucheniye glinozema iz kaolinov spekaniyem s izvestnyakom)

PERIODICAL: Tr. Vses. alyumin.-magn. in-ta, 1957, Nr 39, pp 214-226

ABSTRACT: Sintering with limestone, yielding self-slaking clinker may be employed to obtain Al_2O_3 from kaolins. The optimum amount of $CaCO_3$ going into the charge should stoichiometrically assure formation of pentacalcium aluminate and dicalcium silicate. Completion of the necessary chemical reactions is assured when the material in the sintering zone is brought to partial fusion. The sintering temperature is 1350-1375° and depends upon the purity of the starting materials. A slowed procedure for holding the clinker in a temperature interval close to the sintering temperature is available to produce clinkers with high extraction of Al_2O_3. Thus, the required technological effect is obtained when enriched kaolin and chemically-pure limestone are held in the 1350-1300° temperature range for six minutes. MgO has a harmful effect on the sintering process. When the process is conducted

Card 1/2

137-58-4-6796

Obtaining Alumina from Kaolins by Sintering with Limestone

under optimal conditions, 85% or more of the Al_2O_3 is extracted when the clinker is leached, and chemical losses of Na_2O_3 are about 110 kg per ton of Al_2O_3 reduced to solution from the clinker.

G.S.

1. Alumina silica--Development 2 Sintering--Processes 3 Limestone--Applications

Card 2/2

137-58-6-11908

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 103 (USSR)

AUTHORS: Mazel', V.A., Yeliseyeva, A.A., Oksyuzov, V.A.

TITLE: Production of Alumina from High-silicon Bauxites and Coal Ash by Sintering with Limestone (Poluchenive glinozema iz vysokokremnistykh boksitov i kamennougol'nykh zol spekaniyem s izvestnyakom)

PERIODICAL: Tr. Vses. alyumin.-magn. in-ta, 1957, Nr 39, pp 227-241

ABSTRACT: An investigation has been made of the possibility of sintering high-silica bauxites and coal ash (CA) with limestone to extract Al_2O_3. The bauxite or CA was sintered with various amounts of chemically-pure $CaCO_3$. A high degree of extraction of Al_2O_3 (85% and more) and complete spontaneous crumbling of the sinter can only be assured when the Fe_2O_3 in the raw material is reduced so as to exclude this compound from the sinter-forming components of the charge. To reduce Fe_2O_3 it is recommended that coal or petroleum or foundry coke or carbonized anthracite coal be introduced into the charge. A variation of 100 to 200% from the theoretical in the amount of coal added to the raw bauxite has virtually no effect on the recovery of

Card 1/2

Production of Alumina (cont.)

Al_2O_3 from the sinter and the nature of the spontaneous crumbling thereof. A further addition of coal has an unfavorable effect on the technical properties of the sinter. When CA contains sufficient unburned coal, the process of reduction may be performed without the addition of a special reductant. The optimum metering of $CaCO_3$ for the sintering of bauxites is one that will assure the formation of the compounds C_5A_3 and C_2S. Where CA is concerned, the addition of $CaCO_3$ must be somewhat greater than that required to form C_5A_3 and C_2S. To assure complete sintering, a temperature $> 1350^oC$ is required, as is a somewhat more extended holding period in the high-temperature zones of the furnace (6-10 min in the temperature interval from the sintering temperature to 1300°). When the optimum conditions of preparation and sintering of the charge and of leaching are observed, i.e., conditions that will assure the production of aluminate solutions containing not < 56-60 g/liter Al_2O_3, the extraction of Al_2O_3 is 85.1% of the content of Al_2O_3 in the charge. The loss of caustic with the red mud comes to 35 kg Na_2O (60 kg Na_2CO_3) per t Al_2O_3 extracted in the leaching, under the above-stated conditions. N.P.

1. Aluminum oxides--Production 2. Aluminum ores--Processing 3. Sintering--Materials 4. Sintering--Effectiveness 5. Sintering furnaces--Operation 6. Coal--Applications 7. Calcite--Applications

Card 2/2

MAZEL', V.A.

137-58-5-9278

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 71 (USSR)

AUTHORS: Mazel', V.A., Oksyuzov, V.A., Bessonova, A.S.

TITLE: A Caustic Hydrochloric-acid Method of Extracting Aluminum Oxide from Kaolins (Solyanokislotno-shchelochnyy sposob polucheniya okisi alyuminiya iz kaolinov)

PERIODICAL: Tr. Vses. alyumin.-magn. in-ta, 1957, Nr 39, pp 242-250

ABSTRACT: After subjecting kaolinite-bearing clay to roasting in order to decompose the alumosilicate contained in it, it is leached with a hot solution of HCl. The $AlCl_3$ thus obtained is segregated from the silicon residue and is then evaporated under vacuum in a closed process resulting in the separation of $AlCl_3 \cdot 6H_2O$; the latter is subjected to hydrolytic dissociation by means of roasting. "Raw" Al_2O_3 and HCl are the products of this dissociation. Raw Al_2O_3 is converted to Al_2O_3 by means of a simplified Bayer process. The following basic operations were investigated: roasting of kaoline; leaching of the roasted kaoline with HCl; roasting of $AlCl_3 \cdot 6H_2O$, and leaching of "raw" Al_2O_3 with solutions of NaOH. A standard method for leaching of roasted kaoline was developed. The authors comment on the high technological efficiency of the method described. N.P.

Card 1/1

1. Aluminum oxides--Production 2. Clays--Processing 3. Kaolin--Applications

MAZEL', V.A., doktor tekhn. nauk, prof., red.

[Collected works on the nature of aluminate solutions] Sbornik trudov po voprosu prirody aliuminatnykh rastvorov. Leningrad, 1959. 81 p. (MIRA 15:6)

1. Nauchno-tekhnicheskoye obshchestvo tsvetnoy metallurgii. Leningradskoye mezhoblastnoye pravleniye. 2. Predsedatel' Soveta Nauchno-tekhnicheskogo obshchestva Vsesoyuznogo alyuminiyevo-magniyevogo instituta (for Mazel').
(Aluminates)

YELISEYEVA, A.A.; MAZEL', V.A.

Effect of potassium alkali on the sintering and desiliconizing processes in the preparation of aluminum oxide from bauxites. TSvet. met. 36 no.12: 44-50 D '63. (MIRA 17:2)

MAZEL', V.A.

Problems in the technology and economics of processing kaolins, clays, and other aluminosilicate raw materials for the production of alumina and cement. Tsvet. met. 37 no.10:40-45 O '64. (MIRA 18:7)

MAZEL', V.A.; MEL'NIKOVA, V.P.

Use of dolomite limestone in producing aluminum oxide from aluminum silicates by calcining with lime. TSvet. met. 38 no.4:50-52 Ap '65. (MIRA 18:5)

Doc Med Sci

MAZEL', YA. I., PHYSICIAN

Dissertation: "Minute Volume of the Blood and Other Hemodynamic Indexes in Cases of Normal and Pathologic Blood Circulation."
17/4/50

Second Moscow State Medical Inst imeni I. V. Stalin

SO Vecheryaya Moskva
Sum 71

MAZEL'YA, I.

Heart - Diseases

Hemodynamics in acquired heart diseases. Novosti med. no. 20, 1950.

9. Monthly List of Russian Accessions, Library of Congress, April 1952. Unclassified.

MAZEL', Ya.I.; SEMENOVICH, N.I.; BOGOSLAVSKIY, R.V.

Hemodynamic and respiratory changes in adhesive pericarditis and its surgical therapy. Sovet. med. 16 no. 8:13-19 Aug 1952. (CLML 23:3)

1. Of the Faculty Therapeutic Clinic (Director -- Prof. P. Ye. Lukomskiy) and of the Faculty Surgical Clinic (Director -- Active Member of the Academy of Medical Sciences A. N. Bakulev), Second Moscow Medical Institute imeni I. V. Stalin.

MAZEL', Ya.I.; SEMENOVICH, N.I.

Respiratory function in patients with non-specific pulmonary affections and its changes following pulmonary surgery. Sov. med. no.2:7-12 F '54. (MLRA 7:1)

1. Iz fakul'tetskoy terapevticheskoy kliniki pediatricheskogo fakul'teta (direktor - professor P.Ye.Lukomskiy) II Moskovskogo meditsinskogo instituta im.I.V.Stalina.
(Lungs--Diseases) (Lungs--Surgery) (Respiration)

MAZEL, Ya. I.

MAZEL', Ya.I.

Modification of respiratory functions in suppurative diseases of the lungs treated with penicillin. Klin. med. 32 no.5:84 My '54. (MLRA 7:7)

1. Iz fakul'tetskoy terapevticheskoy kliniki (dir. prof. P.Ye. Lukomskiy) II Moskovskogo meditsinskogo instituta im eni I.V. Stalina)

(PENICILLIN, therapeutic use,
*lung dis., eff. on resp.)
(RESPIRATION, in various diseases,
*lung dis., eff. of penicillin ther.)
(LUNGS, diseases,
*ther., penicillin, eff. on resp.)

Name: MAZEL', Yakov Isaakovich

Dissertation: Minute volume of blood and other hemodynamic indicators in cases of normal and pathological blood circulation

Degree: Doc Med Sci

Affiliation: /Not indicated/

Defense Date, Place: 11 Feb 57, Council of Second Moscow State Med Inst imeni Pirogov

Source: BMVO 23/57

137-58-6-11945

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 108 (USSR)

AUTHORS: Baymakov, Yu.V., Mazel', Ye.V.

TITLE: Experiments in the Carbon Reduction of Alumina and Silica (Opyty vosstanovleniya kremnezema i glinozema uglerodom)

PERIODICAL: Tr. Leningr. politekhn. in-ta, 1957, Nr 189, pp 10-23

ABSTRACT: The reduction (R) of SiO_2 and Al_2O_3 by C is investigated on a laboratory-scale vacuum furnace with a coal heater. The course of the process is monitored by the amount and speed of gas liberation. In the R of briquets precalcined at 1100°C, and composed of a mixture of pure quartz sand, charcoal, and sugar (as binder) with 13% excess C, the onset of R was found to occur at 1300-1350° (reaction: $SiO_2 + 3C \rightarrow SiC + 2CO$). As the temperature rises, the reaction $SiO_2 + C \rightarrow Si + 2CO$ begins maximum speed is obtained on fusion of the SiO_2. The reaction $SiO_2 + 2SiC \rightarrow Si + 2CO$ proceeds at the same time, attaining its maximum speed at the b. p. of SiO_2. Parallel with this (starting at 1350°) there proceeds a side reaction $SiO_2 + Si \rightarrow 2SiO$, with sublimation of the suboxide formed and partial R thereof in accordance with the reaction $SiO + 2C \rightarrow SiC + CO$. At

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137-58-6-11945

Experiments in the Carbon Reduction of Alumina and Silica

temperature >1700°, the SiO_2 R attains 95% completion. In experiments in R of Al_2O_3 from a mixture of the following % composition: 61.2% Al_2O_3, 22.5% charcoal, 16.8% sugar, (and 5% excess C), the R reaction was found to start at 1400° with a linear increase in rate to 1900° and production of Al_4C_3. From 1950° to 2070-2100°, the reaction rate increases considerably. At these temperatures the reaction $Al_2O_3 + 3C = 2Al + 3CO$ occurs, but the excess Al_2O_3 converts the Al to Al_2O, which is completely sublimated. Metal was obtained in the R products only at 2070° in a mixture with Al_4C_3 and Al_2O_3 (Al yield up to 42%) under conditions of fast heating and short holding.

Ye.Z.

1. Aluminum oxides--Chemical reactions 2. Silica--Chemical reactions
3. Carbon--Chemical reactions

Card 2/2

MAZEL, Ye. Z.

USSR/Physics - X-rays focusing adjustment

FD-607

Card 1/1 : Pub. 153-19/22

Author : Pines, B. Ya. and Mazel, Ye. Z.

Title : Modification of the sharp focusing x-ray tube with adjustable size of focal spot

Periodical : Zhur. tekh. fiz. 24, 326-328, Feb 1954

Abstract : Describe a design that is an improvement over the former one of V. S. Kogan and B. Ya. Pines (Izv AN SSSR, ser. fiz. 16, No 3, (1952)). The cathode of the tube is designed for a rigid fixing of the focusing camera in such a manner that the specimen, film and focal spot are located on the focusing circle. The pictures were as good as those taken with a sharp focusing tube. 4 references.

Institution :

Submitted : July 19, 1953

84069
S/181/60/002/009/010/036
B004/B056

9.4300 (1035, 1138, 1143)

AUTHORS: Atsarkin, V. A., Mazel', Ye. Z.

TITLE: The Effect of Heat Treatment of Silicon Upon the Lifetime of Non-equilibrium Charge Carriers

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 9, pp. 2089-2094

TEXT: Silicon samples were heated to 400 - 600°C at $1 \cdot 10^{-5}$ torr, after which they were either slowly cooled or quenched in vacuum-oil. n-type and p-type silicon samples were used, which had been produced by Chokhral'skiy's method in a helium atmosphere. Preliminary experiments showed that in silicon with a given resistivity ρ and an average lifetime τ_0 of the carriers, a certain number of recombination centers determinable after quenching corresponds to each temperature, without the duration of heating (5 - 90 min) exerting any influence. The following experiments were therefore carried out with heating lasting 10 min. Fig. 1 shows the lifetime τ after quenching as a function of 1/T. The number N of recombination centers is proportional to $1/\tau$ and 1/T. The relation $N = A \exp(-\varepsilon/kT)$ was

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The Effect of Heat Treatment of Silicon Upon the Lifetime of Non-equilibrium Charge Carriers

found for the investigated temperature range, where A is a constant, $\varepsilon = (0.8 \pm 0.1)$ ev. Samples with the same ϱ but different τ_o after quenching yielded also a different τ, in which case, however, also τ decreased with decreasing τ_o. The density of the dislocations was determined by means of etching and, as shown in Table 1, a dependence on this density was found both for τ_o and τ. Fig. 2 shows τ/τ_o as a function of the cooling rate (for non-quenched samples). Up to a rate of 40-50 degrees/min τ/τ_o depends considerably on it, whereas between 40-50 and 200-250 degrees/min τ/τ_o remains nearly constant. The authors call cooling at a rate of 200 degrees/min "technical quenching". Table 2 gives the values for silicon treated in this way. Quenched silicon was heated once more and compared with samples that had undergone no previous heat treatment (Table 3). In the case of samples which were heated to 600°C, quenched, and again heated to 600°C, τ no longer attained the original value, whereas in the test samples, τ remained unchanged or even increased. At 400°C, however, the original value of τ was again attained with quenched samples. From their experiments the authors draw the conclusions that at 400-600°C, not only the temperature, but also the quenching process plays a part in the formation of recombination centers. There are 2 figures, 3 tables, and 11 references: 2 Soviet and

Card 2/3

The Effect of Heat Treatment of Silicon Upon the Lifetime of Non-equilibrium Charge Carriers

S/181/60/002/009/010/036
84069
B004/B056

8 US.

SUBMITTED: February 21, 1959 (initially) and
July 30, 1959 (after revision)

Card 3/3

ZELIKMAN, G.A.; MAZEL', Ye.Z.; PRESS, F.P.; FRONK, S.V.; DOBKIN, A.S., red.; SHUL'SKIY, A.S., red.

[Silicon transistor diodes and triodes; manufacture techniques] Poluprovodnikovye kremnievye diody i triody, tekhnologiia proizvodstva. Moskva, Izd-vo "Energiia," 1964. 183 p. (MIRA 17:8)

ZELIKMAN, G.A.; MAZEL', Ye.Z.; PRESS, F.P.; FRONK, S.V.; DOBKIN, A.S., red.; SMUL'SKIY, A.S., red.

[Silicon diodes and triodes; their production technology] Poluprovodnikovye kremnievye diody i triody; tekhnologiia proizvodstva. Moskva, Energiia, 1964. 183 p. (MIRA 17:12)

Mazel', Yu. S.

137-1957-12-24261

Translation from: Referativnyy zhurnal, Metallurgiya, 1957, Nr 12, p 193 (USSR)

AUTHORS: Mazel', Yu. S., Oleshkov, Yu. V., Portnoy, N. D.

TITLE: Mechanization of a Manufacturing Production Line for Open-Top-Car Loading Doors (Mekhanizatsiya linii izgotovleniya lyukov poluvagona)

PERIODICAL: Tekhnol. transp. mashinostroyeniya, 1957, Nr 2, pp 44-50

ABSTRACT: Bibliographic entry

1. Railway cars-Manufacture-Bibliography

Card 1/1

MAZEL', Yu.

135-7-5/16

SUBJECT: USSR/Welding

AUTHORS: Protnoy, N.D., Candidate of Technical Sciences; Mazel', Yu.S., Engineer; and Oleshkov, Yu.V., Engineer.

TITLE: Mechanized Welding Line for Freight-Car Hatches. (Mekhanizatsiya linii svarki lyukov gruzovogo vagona).

PERIODICAL: "Svarochnoye Proizvodstvo", 1957, # 7, pp 13-16 (USSR)

ABSTRACT: The article describes the new mechanized production line for welding freight-car hatches, designed, built, and put into operation at the authors' plant. The hatch considered (the design is shown in illustrations) consists of a 6 mm stamped sheet, 1590x1380 mm in size and weighing 180 kg with many stiffening and strengthening parts. It has to take up heavy impacts, as for example, pig iron falling from 2 m height. Each freight-car has 14 hatches. With the old production method, the current production program for hatches would require a workshop of 7000 m^2 floor space, since the old technology required many assembling and welding fixtures. The assembled doors were transported by crane to a special inclined turning device for welding. Each hatch had to be turned 4 times. When welding long seams,

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TITLE: Mechanized Welding Line for Freight-Car Hatches. (Mekhanizatsiya linii svarki lyukov gruzovogo vagona).

6 x 6 mm, by electrodes of 8 mm diameter, voids occurred in the seam root, which impaired the strength of joints and compelled a reduction in the electrode diameter.

Now, two production lines are employed: the short one with four work positions and 8.5 m length, comprising two automatic welding heads, one pneumatic revolving lifting device for placing and removing of parts. The long line has 12 work positions is 20 m long, and is composed of four automatic welding devices for specialized operations, and is mounted on two sections of inclined roller conveyors. The arrangement and its operation is described in detail. The design of the inclined conveyors and of the tilting and turning devices is shown in drawings. The welding conditions are also listed.

The new production line works with a cycle of 3.5 min for each welding operation.
About 26 % of welding materials and 200,000 kwh of electric power are saved annually.

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135-7-5/16

TITLE: Mechanized Welding Line for Freight-Car Hatches (Mekhanizatsiya linii svarki lyukov gruzovogo vagona).

The article contains 2 photographs and 6 drawings.

ASSOCIATION: "УРАЛВАГОНЗАВОД" (Uralvagonzavod).

PRESENTED BY:

SUBMITTED:

AVAILABLE: At the Library of Congress.

Card 3/3

YERMAKOV, M.M., inzh., red.; MAZEL', Yu.S., inzh., red.; DUGINA, N.A., tekhn. red.

[Mechanization and automation in railroad car manufacture] Mekhanizatsiia i avtomatizatsiia v vagonostroitel'nom proizvodstve. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 183 p. (MIRA 15:4)

1. Uralvagonzavod, Nizhniy Tagil.
(Nizhniy Tagil--Railroads--Cars)
(Automatic control)

MAZEL', Yu.Ya.; RACHINSKIY, V.V.; TAO DZHUN'-VEN'; SHITT, T.P.

Determining free phosphorus in soil. Pochvovedenie no.8:101-103 Ag '63. (MIRA 16:9)

1. Moskovskaya sel'skokhozyaystvennaya akademiya imeni K.A. Timiryazeva.

BORISOVA, N.I.; [illegible], Yu.Ya.; RACHINSKIY, V.V., doktor khim. nauk

[Use of the method of labeled atoms in soil chemistry] Primenenie metoda mechenykh atomov v agrokhimii. Moskva, Sel'khoz. akad., 1963. 47 p. (Praktikum po primeneniiu izotopov i izlucheniy v sel'skom khoziaistve, [illegible]) [illegible]

MAZEL', Yu.Ya., assistent

Kinetics and statics of calcium sorption by isolated roots of corn an sulflower. Izv. TSKHA no.4:210-213 '64.

(MIRA 17:11)

1. Kafedra prikladnoy atomnoy fiziki i radiokhimii Sel'skokhozyaystvennoy akademii imeni Timiryazeva.

MAZEL', Z. Ye., Engineer

"Concerning Conveyance of Overburden Rocks From a Stope to a Dump." Sub 1 Dec 47, Moscow Order of the Labor Red Banner Construction Engineering Inst imeni V. V. Kuybyshev (Cand. Tech. Sci.)

Dissertations presented for degrees in science and engineering in Moscow in 1947.

SO: Sum.No. 457, 18 Apr 55

MAZEL', Z.Ye., inzh; USKOV, A.N., inzh; YAKOBSON, A.G., inzh.

Wire-rope transportation on construction sites of the Stalingrad Hydroelectric Power Station. Mekh.stroi. 15 no.10:7-13 O '58. (MIRA 11:11)

(Stalingrad Hydroelectric Power Station) (Cableways)

MAZEL', Zinoviy Yevgen'yevich, kand.tekhn.nauk; USKOV, Anatoliy Pavlovich, inzh.; YAKOBSON, Andrey Genrikhovich, inzh.; PLAVINSKIY, V.I., kand.tekhn.nauk, nauchnyy red.; PETROV, G.D., inzh., nauchnyy red.; AKULOV, D.A., red.; SOKOL'SKIY, I.F., tekhn.red.

[Cableways on construction sites of the Stalingrad Hydroelectric Power Station] Kanatnye dorogi na stroitel'stve Stalingradskoi GES. Moskva, Gidroproekt, 1959. 72 p. (MIRA 13:6)
(Stalingrad Hydroelectric Power Station) (Cableways)

JASIEWICZ, Zygmunt, prof. dr inz.; GORCZYCA, Stanislaw, dr inz.; MAZELA, Boleslaw, mgr inz.

Electron microscopic testing of the dislocations in thin metal leaves. Hutnik P 30 no.10:330-341 O'63.

1. Katedra Metalografii i Obrobki Cieplnej, Akademia Gorniczo-Hutnicza, Krakow.

MAZELAITIS, JONAS.

Valgomieji ir nuodingieji grybai.

Vilnius, Poland Valstybine politines ir mokslines literaturos leidykla, 1957. 246 p.

Monthly List of East European Accessions, (EEAI) LC, Vol. 9, No 1, Jan. 1960

Uncl.

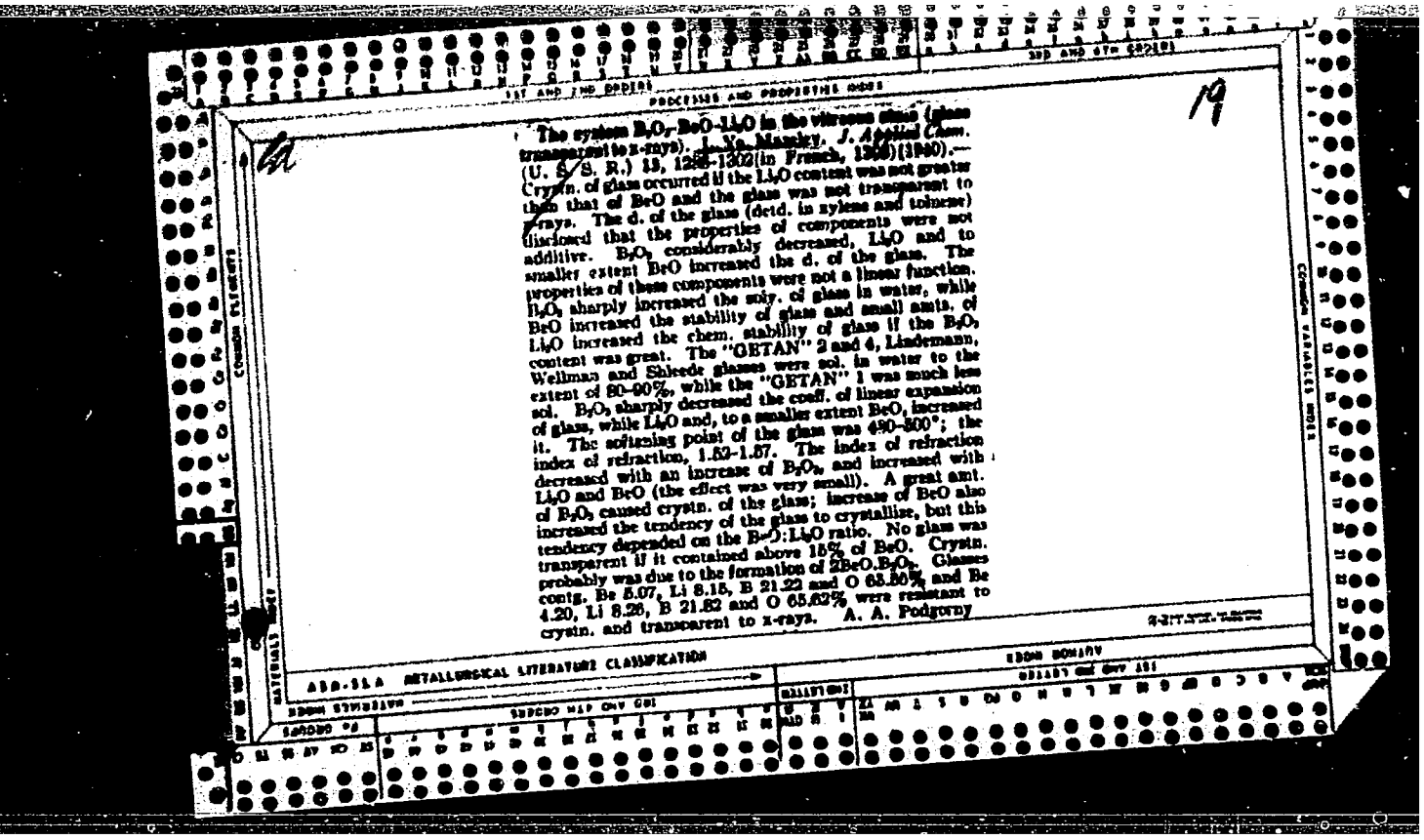
MAZELAITIS, J.

Material concering the hymenomycetes of Lithuania. p. 13

Lietuvos TSR Mokslu adademija. Biologijos institutas. DARBAI. Vilnius
Vol. 3, 195?
Lithuanian, Poland

Monthly List of East European Accession (EEAI) LC, Vol. 9, no. 1, Jan. 1960

Uncl.



The system B_2O_3-BeO-Li_2O in the vitreous state (glass transparent to x-rays). I. Ya. Mangley. *J. Applied Chem.* (U. S. S. R.) 13, 1285-1302 (in French, 1303) (1940).—Crystn. of glass occurred if the Li_2O content was not greater than that of BeO and the glass was not transparent to x-rays. The d. of the glass (detd. in xylene and toluene) disclosed that the properties of components were not additive. B_2O_3 considerably decreased, Li_2O and to smaller extent BeO increased the d. of the glass. The properties of these components were not a linear function. B_2O_3 sharply increased the soly. of glass in water, while BeO increased the stability of glass and small amts. of Li_2O increased the chem. stability of glass if the B_2O_3 content was great. The "GETAN" 2 and 4, Lindermann, Wellman and Shleede glasses were sol. in water to the extent of 80–90%, while the "GETAN" 1 was much less sol. B_2O_3 sharply decreased the coeff. of linear expansion of glass, while Li_2O and, to a smaller extent BeO, increased it. The softening point of the glass was 490–500°; the index of refraction, 1.52–1.57. The index of refraction decreased with an increase of B_2O_3 and increased with Li_2O and BeO (the effect was very small). A great amt. of B_2O_3 caused crystn. of the glass; increase of BeO also increased the tendency of the glass to crystallize, but this tendency depended on the BeO:Li_2O ratio. No glass was transparent if it contained above 15% of BeO. Crystn. probably was due to the formation of $2BeO.B_2O_3$. Glasses contg. Be 5.07, Li 8.15, B 21.22 and O 65.56% and Be 4.20, Li 8.26, B 21.82 and O 65.62% were resistant to crystn. and transparent to x-rays. A. A. Podgorny

MAZELEV, L. Ya.

USSR

The system B_2O_3-BeO-MgO-Li_2O in the glasslike state. L. Ya. Mazelev. *Vestsi Akad. Navuk Belarus. S.S.R., Ser. Khim. Navuk* 1952, No. 3, 90-8.—By use of the reagents H_3BO_3, $BeCO_3$, $MgCO_3$, and Li_2CO_3, resp., 565 different melted glass mixts. of the compn. B_2O_3-BeO-MgO-Li_2O were prepd. and the areas and boundaries of the cryst. phase (glass) formation in the system detd. According to the amt. of BeO the glass mixts. are divided into 6 main groups, contg. 2.5, 5, 7.5, 10, 12.5, or 15% BeO, resp. Each group is further divided into several subgroups: the amt. of MgO in each subgroup varies from 1 to 15%, and that of Li_2O from 2.5 to 15%, resp. The amt. of B_2O_3 in all types of glass varies from 55 to 95.5%. Data and graphic representations for the glass formation in each main group of the system and the specific effect of the glass crystn. of each of the oxides are given. Total amt. of MgO in some types of glass is as high as 23.5-25%; this was impossible to obtain when the glass contained either P_2O or MgO alone. When MgO and BeO are present in the glass mixt., transparent types of glass are formed contg. Li_2O as high as 12.5-15%. When the amt. of BeO in the glass mixt. is increased from 7.5 to 15%, the area of the glass formation is enlarged as long as BeO does not exceed 15% and BeO + MgO 22.5%, resp. When the amt. of Li_2O in the mixt. is increased, the coeff. of the thermal expansion is increased and water resistance of the resulting glass is decreased; large amts. of B_2O_3 in the mixt. increase the degree of absorption of x-rays by the glass. In glass contg. a large amt. of B_2O_3 and a small amt. of alkali oxides (less than 15%) crystals are formed of the type mBeO-nB_2O_3, 2MgO-B_2O_3, and 3MgO-B_2O_3. The melting temps. and the technologic prepns. of the 6 main groups of the glass in question are given; all types of the glass melt (with clarification) within the temp. range of 1000-1300°. B. W.

MARLEV L. Ya.

Brit Abs BI
June 1953
Glass, Ceramics, Refractories

Effect of various additives to sulphate-soda and soda mixes on rate of glass formation. L. Ya. Marelev (*Stekło Keram.*, 1952, No. 9, 6—10; *Glass*, 1953, **30**, 220—221).—A critical review of some Russian studies on glass-melting accelerators by the research institutes, GOI and VNIIS. Forty-one inorg. salts were tried (1% by wt. of batch) on batches of a sulphate-soda sheet glass, and an ordinary soda domestic glass, (i) on a laboratory scale at 500—1000° (electrical muffle furnace), (ii) on a semi-industrial scale at 1300—1350° (reverbatory furnace). In all, 2150 tests and 600 controls were made; the results are shown in graphs and tables. Almost complete identity of results was noted, with the two types of glass. The effects of temp. on loss of volatiles, rate of glass formation, clarification, and clay contamination were discussed. The main conclusions were: increased rate of glass formation by all halides, especially by NaCl and KCl, the fluorides did not show appreciable superiority. Among other salts, Na_2SO_4, $Na_2H_2PO_4$, and KNO_3 proved most effective. All the NH_4 salts, $KMnO_4$, Na_2BuO_7, showed positive action, and were good clarifiers.

A. PACKTER.

MAZELEV, L. YA.

"Study of Crystallization of Boron Glasses", Izv. AN Beloruskoy SSR, No 4, 1953, pp 105-113.

The crystallization of pure boron glasses was studied. Microcuts were viewed under microscope. Zones of easy or difficult crystallization were separated. The mineral 3 $BeO.B_2O_3$ was separated by dissolving and cooling crystallized glasses in chloride. It's optical properties were examined. (RZhFiz, No 1, 1955) SO: Sum. No. 443, 5 Apr. 55